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NEW—Pre- & Postoperative Treatment

This **Brand New** Book, by DR. ROBERT L. MASON of the Massachusetts General Hospital, provides the surgeon and the general practitioner with a detailed discussion of the many phases of preoperative and postoperative care. It is a book that has long been sought.

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THE DIAGNOSIS OF GASTRIC CARCINOMA AND PEPTIC ULCER

THE COMPARATIVE VALUE OF VARIOUS PROCEDURES, WITH SPECIAL REFERENCE TO THE GASTRIC ANALYSIS

CRANSTON HOLMAN, M.D.
NEW YORK

Accuracy in the diagnosis of gastric and duodenal lesions has been greatly increased by improvement made in the technic and interpretation of fluoroscopic and x-ray studies of the gastro-intestinal tract. Nevertheless, the early diagnosis of cancer of the stomach remains a very difficult problem, and it is only through the solution of this problem that the results of treatment can be improved. Up to the present time surgery offers the only satisfactory means of treatment and, as the methods of Billroth and their various modifications are still considered technically adequate, it is doubtful whether in the future any startling advances will be made in the technical approach to curing carcinoma of the stomach. Most of the literature on carcinoma of the stomach concerns itself with variations in the technic rather than with the currently more important subject of early diagnosis. For this reason the experience in this clinic is being summarized to emphasize the importance of a properly performed gastric analysis as an aid in the early diagnosis of gastric and duodenal lesions.

Interest in the examination of gastric secretion has been revived since the introduction of histamine as a gastric secretagogue,[1] but as yet opinion is divided as to the diagnostic importance of the gastric analysis.[2] It is my purpose in this paper to submit the gastric analyses in 152 proved gastric and duodenal lesions, to point out their importance in the diagnosis of these lesions and to emphasize certain features that are important in obtaining accurate results. I realize that this is a comparatively small group of cases, but it must be remembered that instead of using statistics from the records I investigated and followed each case. With the exception of the cases reported by Bloomfield and his associates, this is one of the largest personally investigated series.

The method used in obtaining specimens of gastric juice is that suggested by Bloomfield and Polland.[3] The examination is made after a fast of twelve hours, with histamine used as a stimulus in a dose of 0.1 mg. to each 10 Kg. of body weight. The fasting contents are withdrawn, the histamine is injected subcutaneously, and then the stomach contents are continuously aspirated with a syringe for a period of thirty minutes, the aspirated contents being divided into three ten-minute specimens. The acidity is then titrated against tenth normal sodium hydroxide, Töpfer's reagent and phenolphthalein being used as indicators. The greatest ten-minute volume of secretion and the highest titratable acidity attained are considered the indexes of gastric function.

To insure an accurate determination of this function, three requisites must be recognized. First, the person performing the aspiration must be a physician familiar with the technic of aspirating the stomach, and he must necessarily be interested in the procedure. The delegation of the test to a nurse or to a technician repeatedly leads to error. Second, the stomach must be aspirated absolutely dry before the fractional specimens are collected. This procedure frequently takes from ten to fifteen minutes, and on occasion the test may have to be abandoned for the day because of the constant regurgitation of bile. Third, dilution of the gastric contents must be avoided;[4] the patient should be required to expectorate all saliva, and all bile-tinged specimens should be discarded. The volume of secretion characteristically follows a more or less regular curve,[5] and this characteristic can be used to check the accuracy of the procedure. If these three requirements are met, an accurate estimation of the gastric secretion can be made. It has been found that repeated tests on the same patient yield approximately identical results.

The importance of following the described procedure in order to obtain an accurate analysis cannot be stressed too greatly. It has been my experience on numerous occasions that the results obtained by the relatively uninterested technician or nurse will not compare with the results of one who is responsible for and interested in the correct diagnosis of the patient.

I was fortunate in having a small group of patients who had been subjected to the generally accepted analysis by technicians using a modified Ewald test meal. When the results of these studies were compared with those generally reported in the literature [6] a surprising agreement was apparent in the results. Considering

From the Department of Surgery of the New York Hospital and Cornell University Medical College.

1. Carnot, P.; Koskowski, W., and Liebert, E.: Influence of Histamine on Digestive Secretion in Man, Compt. rend. Soc. de biol. **86**: 575, 1922.

2. Friedenwald, Julius: A Clinical Study of a Thousand Cases of Ulcer of Stomach and Duodenum, Am. J. M. Sc. **144**: 157, 1912. Moynihan, Berkeley: Some Problems on Gastric and Duodenal Ulcer, Brit. M. J. **1**: 221 (Feb. 10) 1923. Brown, T. R., in Cecil R. L.: Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1928, p. 655. Eusterman, G. B.: The Newer Aspects of Gastric Carcinoma, Radiology **6**: 409 (May) 1926. Comfort, M. W., and Vanzant, Frances R.: Gastric Acidity in Cancer of the Stomach, Proc. Staff Meet., Mayo Clin. **8**: 271 (May 3) 1933. Vanzant, Frances R.; Alvarez, W. C.; Berkson, Joseph, and Eusterman, G. B.: Changes in Gastric Acidity in Peptic Ulcer, Cholecystitis and Other Diseases, Arch. Int. Med. **52**: 616 (Oct.) 1933.

3. Bloomfield, A. L., and Polland, W. S.: The Diagnostic Value of Studies of Gastric Secretion, J. A. M. A. **92**: 1508 (May 4) 1929.

4. Gorham, F. D.: The Factor of Dilution in Gastric Analysis, J. A. M. A. **81**: 1738 (Nov. 24) 1923.

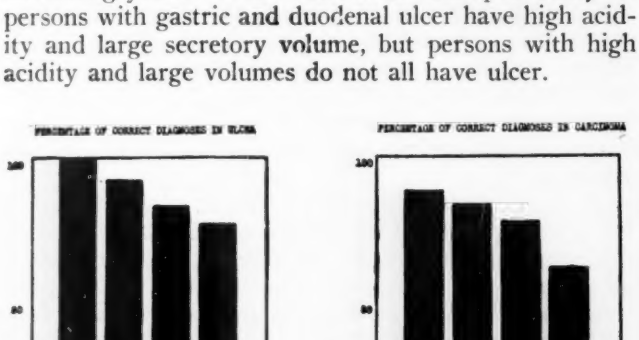
5. Gompertz, L. M., and Vorhaus, M. G.: Clinical Aspects of Gastric Secretion, J. Lab. & Clin. Med. **11**: 14 (Oct.) 1925. Bloomfield, A. L., and Keefer, C. S.: Gastric Motility and the Volume of Gastric Secretion in Man, J. Clin. Investigation **5**: 295 (Feb.) 1928.

6. Friedenwald.[2] Brown.[2] Eusterman.[2] Comfort and Vanzant.[2] Vanzant, Alvarez, Berkson and Eusterman.[2]

gastric and duodenal ulcers together, most studies agree that between 10 and 15 per cent are associated with a subnormal acidity or anacidity; in this group tested with the Ewald meal, the percentage was 13. However, when the same patients were subjected to the carefully performed analysis described, the gastric secretion was without exception within or higher than the normal limits.

Since the error in gastric analysis results in too low rather than in too high a value of secretion, my figures for gastric secretion in cases of carcinoma vary little from those usually obtained; i. e., from 10 to 15 per cent of gastric cancer have a normal or high acidity.

The normal standard of gastric secretion as obtained by the method just described has been determined by Bloomfield and Polland. In general it may be said that the normal range of free hydrochloric acid is between 60 and 110 degrees and the maximum ten-minute secretory volume between 15 and 35 cc. Both the acidity and the volume of secretion tend to become lower with advancing years. It has been found that practically all persons with gastric and duodenal ulcer have high acidity and large secretory volume, but persons with high acidity and large volumes do not all have ulcer.



Differential diagnosis: I. Diagnosis by gastric analysis. II. Diagnosis by operation. III. Diagnosis by x-rays. IV. Diagnosis by history and physical examination.

Gastric analyses were done on ninety patients with peptic ulcer and on sixty-two patients with carcinoma of the stomach in an effort to determine the diagnostic value of a properly performed gastric analysis. The analysis led to a correct diagnosis in 96 per cent of the cases. All the 152 patients either were operated on or came to postmortem examination. All ninety patients with peptic ulcer had a secretion of free hydrochloric acid that fell within normal limits (from 60 to 110 degrees) or were above normal. With five exceptions, the sixty-two patients with cancer of the stomach had a low acidity or anacidity. One of the exceptions (with an acidity of 90 degrees of hydrochloric acid) proved at autopsy to be carcinoma of the duodenum. One other (with an acidity of 60 degrees of free hydrochloric acid) occurred in a man with pyloric obstruction of one year's duration, with an antecedent history of indigestion rather typical of ulcer pain, of ten years' duration. The other three had relatively short histories with no symptoms suggestive of antecedent ulcer.

The accuracy of the gastric analysis compared with other methods of diagnosing ulcer and carcinoma is shown in the accompanying chart. It will be seen that the diagnosis was correct in a larger percentage of cases when it was based on gastric analysis than when any other single method was relied on.

Taking the 152 cases of stomach lesions, both ulcer and carcinoma, as a group, one finds that the clinical diagnosis was correct in 77 per cent of the cases and the roentgenographic diagnosis in 88.2 per cent. It was interesting to find that the diagnosis made by the surgeon at the operating table by inspection and palpation was correct in 93 per cent of the cases, whereas the diagnosis based on the gastric analysis was correct in approximately 97 per cent of the cases.

The following cases may serve as illustrations:

REPORT OF CASES

CASE 1.—A woman, aged 44, had been operated on five months previously for a perforated ulcer. She had had no antecedent symptoms. After operation she was placed on a strict diet, in spite of which she had nausea and a sensation of motion of her stomach following meals. Physical examination was not remarkable except for tenderness in the epigastrium and a well healed right rectus wound.

Roentgen examination revealed a defective duodenal cap with a 25 per cent twenty-four hour gastric retention. The gastric analysis showed a 7 per cent free hydrochloric acid and total acid of 13 degrees.

Exploratory laparotomy was performed. The surgeon diagnosed the lesion as a parapyloric ulcer causing obstruction, and a posterior gastro-enterostomy was done.

The immediate postoperative course was uneventful, but during the next six months the patient gradually lost weight and strength, and a marked ascites developed. At autopsy a primary infiltrating scirrhous carcinoma of the stomach was found, with metastases to regional nodes, omentum and gallbladder.

Clinically, radiologically and at the operating table the lesion appeared to be a benign ulcer; the gastric analysis, however, favored the diagnosis of carcinoma.

CASE 2.—A man, aged 50, had had recurrent attacks of epigastric pain during the preceding three years. For the past two months the pain had become quite severe, was almost constantly present and was associated with nausea and frequent attacks of vomiting. Physical examination was not remarkable save for slight tenderness on deep pressure in the epigastrium. Roentgenograms revealed a large filling defect in the region of the antrum extending as far as the pylorus, suggestive of carcinoma. There was a high degree of acidity in all specimens —the highest was 96, with a secretion of 50 cc.

Gastric exploration was performed and a mass 8 cm. in diameter was found on the posterior wall of the stomach in the prepyloric region. A diagnosis of carcinoma was made and a gastric resection was performed. Serial sections of the lesion failed to reveal any evidence of carcinoma. The patient is now well and healthy, one year after operation.

This is another case in which all methods of diagnosis failed except that based on the gastric analysis.

CASE 3.—A man, aged 50, first seen in February 1934, had had for the preceding four years recurrent epigastric pain relieved by food and sodium bicarbonate. During the six months before entry into the hospital the pain changed to a constant dull ache and caused the patient to lose his appetite. There was no vomiting or melena. The physical examination was not remarkable except for tenderness to deep pressure in the epigastrium. Roentgenograms revealed a penetrating lesion on the lesser curvature, which was diagnosed as a benign gastric ulcer. The gastric analysis failed to show any free acid. The patient was placed on a restricted diet, on which he gained weight and felt greatly improved. He was discharged, to be followed in the outpatient department, where roentgenograms were taken six months later. In spite of symptomatic improvement and a 10 pound (4.5 Kg.) gain in weight, the roentgenograms revealed a slightly enlarged crater. He was readmitted in October 1934, and gastric exploration revealed a huge carcinoma, involving the upper two thirds of the lesser curvature of the stomach, which was deemed inoperable. Anacidity was the only feature in this man's disease that made one suspicious of a malignant condition.

CASE 4.—A man, aged 73, entered the hospital because of abdominal cramps of one month's duration, associated with nausea and vomiting for the past two months. He had lost 15 pounds (6.8 Kg.) in three weeks' time. Examination revealed

that the patient was somewhat undernourished and dehydrated but in no great distress. The abdomen was distended, and moderate tenderness was present in the lower part. No masses were felt. Roentgenograms revealed an almost complete pyloric obstruction and a huge stomach with twenty-four hour gastric retention. The gastric analysis showed 100 degrees of free hydrochloric acid, with volumes of from 40 to 60 cc. for each ten-minute specimen. In March 1933 a gastro-enterostomy was performed under local anesthesia for a complete pyloric obstruction supposedly caused by carcinoma of the pyloric end of the stomach. The postoperative course was uneventful and five weeks later the pyloric end of the stomach was resected in the belief that the lesion was carcinomatous, although it had diminished to half its original size. Serial sections proved that the mass was fibrous tissue surrounding an indurated benign ulcer. Three years after operation he is well and healthy.

These results lead one to some very definite conclusions. Obviously a small percentage of gastric lesions defy all the means now available for their correct diagnosis, including actual exploration, and hence their proper treatment is impossible.[7] The decision as to whether primarily medical or surgical treatment is to be given any individual lesion should be governed by the patient's age and history, by the roentgenographic appearance and size of the ulcer, and by the gastric secretion. No single finding is infallible, but a lesion in the stomach associated with a low or absent gastric acidity is one that makes operative intervention advisable. This statement can be made only if one presupposes an accurate gastric analysis. Palmer,[8] in his review of the literature on peptic ulcer and achlorhydria, has shown quite conclusively that a benign ulcer with achlorhydria is very unusual, and in this series there was no benign ulcer with low or absent acid. It is in the small group of patients who have a low acidity with all other examinations pointing to a benign lesion that a properly performed analysis is most valuable. These are the patients on whom a clinician is most likely to delay surgical therapy, and he thereby loses the opportunity to attack the lesion in an early and resectable stage.

CONCLUSIONS

1. Given a lesion of the stomach, a low acidity or anacidity is strong presumptive evidence of carcinoma; such a condition demands surgical intervention. A normal or high acidity in gastric or duodenal lesions points to ulcer.

2. The actual collection of the gastric secretion should be made in the manner described, to avoid inaccuracy.

3. In comparison with the other methods of diagnosis, the gastric analysis, properly done, was the most accurate in the 152 cases studied, although it was not infallible.

4. The information obtained from a properly performed gastric analysis is of practical value in directing one's treatment of a gastric lesion.

1300 York Avenue.

7. Bloomfield, A. L.: The Diagnosis of Early Cancerous Changes in Peptic Ulcer, J. A. M. A. **104**: 1197 (April 6) 1935.

8. Palmer, W. L.: The Mechanism of Pain in Gastric and Duodenal Ulcer: I. Achlorhydria, Arch. Int. Med. **38**: 603 (Nov.) 1926.

He Who Enters His Father's Profession.—To count on the help and influence of other men, to wonder what A and B will do for us, are evidence of weakness. Especially, a young man must be careful to reckon a successful father not among his assets but among his liabilities. For he who enters his father's profession counting on his father's name enters it at his peril: and his venture is the more perilous, if he takes, in the same profession, the same line.—Paget, Stephen: Confessio Medici, New York, Macmillan Company, 1931.

FERTILITY AND CONTRACEPTION IN NEW YORK AND CHICAGO

RAYMOND PEARL
BALTIMORE

In connection with an investigation[1] of human fertility and the factors that influence it, based on the complete reproductive histories of 30,949 women delivered in hospitals during 1931 and 1932 and resident in selected large cities east of or on the Mississippi River, it became necessary to extract separately the material for New York City. For comparison with those data the material collected in the second largest city in the country, Chicago, seems particularly suitable. The samples from the two cities are of nearly the same size and in other respects closely similar.

All the original records and histories on which this study is based were obtained from the patients in hospital obstetric services by qualified medical persons (or in a few instances by trained nurses working under medical supervision).

It is my purpose in this paper to present such a comparison. Its interest arises from a number of facts. In the first place these two cities together in 1930 contained 8.4 per cent, or almost exactly a twelfth, of the total population of continental United States. They represent the farthest progression of the process of urbanization in the western hemisphere. All students of population agree that this process has produced as one of its associated phenomena profound alterations, both quantitative and qualitative, in human reproduction. There is also general agreement that one of the basic problems of population today is the critical scientific appraisal of the effects of contraception, as actually practiced. The statements and figures of birth control propagandists cannot quite be relied on to furnish such an appraisal. They tend to confuse the possibilities of their technics as used by selected groups of specially instructed women with the actualities as manifested in random samples of the general population, which include among others ignorant, stupid and feckless folk all too often economically so situated as to make the physiologically adequate practice of contraception by any methods now known extremely difficult if not actually impossible. Birth control practices involve as a considerable element mental attitudes and habituations—in short, individual and group psychologic factors. It is a matter of great interest to know whether there are significant differences in degrees and kinds of controlled fertility in different large communities which are known to differ in their attitudes and outlooks in regard to other matters.

SIZE OF SAMPLES AND AGE OF WOMEN

Table 1 gives the total number of women in the New York and Chicago samples and their average ages in years at the time of record. In this and all following tables in this paper figures in parentheses are percentages, rounded off to whole integers. The separa-

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1. This study has been generously aided from its inception by grants from The Milbank Memorial Fund. Detailed progress reports on the work have been published as follows: Pearl, Raymond: Contraception and Fertility in 2,000 Women, Human Biol. **4**: 363-407 (Sept.) 1932; Contraception and Fertility in 4,945 Married Women, ibid. **6**: 355-401 (May) 1934; Third Progress Report on a Study of Family Limitation, Milbank Mem. Fund Quarterly **14**: 258-284, 1936. In these reports will be found details as to the methods of collecting and analyzing the material.

tion into groups of primiparas [2] (women who have experienced up to the time of record only one pregnancy) and multiparas [2] (women who have experienced two or more pregnancies) is occasioned by the fact that all earlier studies have shown that the extent and results of contraceptive practices are significantly different in these two groups. "Noncontraceptors" are women who have made no attempt whatever at any time to prevent conception. "Contraceptors," for purposes of present discussion, are all those women who have ever at any time in their reproductive lives made any sort of attempt, however perfect, continuous or adequate on the one hand, or inept, irregular or physiologically stupid on the other hand, to prevent conception from occurring after sexual intercourse.

All the women discussed in this paper were married, had been married only once, and were free of any form of gynecologic disease recognized in the hospitals in which they were delivered. So restricting the material obviously enhances its statistical homogeneity and reliability.

The total material in the two samples comprises 7,530 women, of whom 6,871, or 91 per cent, were whites and 669, or 9 per cent, were Negroes. The white samples are almost identical in size in the two cities, but the Negroes are much better represented in the New York than in the Chicago sample. In the New York sample 35.8 per cent of the white women were primiparas, and in the Chicago sample 43.4 per cent. Both these figures represent an excess over the conditions in the United States as a whole. In the United States registration area in 1930 (which included all the states with the exception of South Dakota and Texas) 32.24 per cent of the white women bearing children were primiparas.

The excess of primiparity in the present samples is probably explained chiefly by the fact that these women were all delivered in hospitals. The Negroes in the present samples show smaller percentages of primiparity than the whites, as would be expected a priori.

Among the whites, 53 per cent of the New York women were contraceptors (as here defined) as against 64 per cent of the Chicago women. The difference (11 ± 0.8) is probably significant statistically, being nearly fourteen times its probable error. Among the Negroes the corresponding percentages are, as was to be expected, much smaller, being 24 for the New York sample and 47 for the Chicago sample (which however is too small absolutely to be regarded as representative). So far as the whites are concerned, where the samples are large enough to give some confidence in the results the evidence suggests a considerable probability that the attempted practice of birth control is definitely more prevalent in the population of Chicago than in that of New York.[3] If a sociological opinion may be ventured, this finding does not seem surprising. On the whole, it is probably a fair generalization that the Middle West is more "advanced" in its attitudes and generally more open minded toward relatively new ideas and more receptive to propaganda than the Atlantic seaboard. If this is generally so there is no reason why the attitude toward birth control should be an exception.

TABLE 1.—*Number of Women and Average Ages*

Items	New York		Chicago	
	White	Negro	White	Negro
1. Total women in sample	3,420 (100)	531 (100)	3,451 (100)	138 (100)
a. Primiparas noncontraceptors	748 (22)	151 (28)	629 (18)	29 (21)
b. Primiparas contraceptors	476 (14)	21 (4)	868 (25)	12 (9)
c. Multiparas noncontraceptors	868 (25)	252 (47)	600 (17)	45 (33)
d. Multiparas contraceptors	1,328 (39)	107 (20)	1,354 (39)	52 (38)
2. Average age in years of women in sample (totals)	26.63	24.87	27.10	25.12
a. Primiparas noncontraceptors	22.96	21.35	24.35	21.43
b. Primiparas contraceptors	23.97	22.64	24.99	21.92
c. Multiparas noncontraceptors	28.09	26.13	29.17	26.43
d. Multiparas contraceptors	28.70	27.31	28.81	26.79

TABLE 2.—*Exposure to Risk of Becoming Pregnant*

Items	New York		Chicago	
	White	Negro	White	Negro
3. Total exposure to risk of pregnancy (person-years)	10,538.4 (100)	1,517.3 (100)	10,383.0 (100)	435.6 (100)
a. Exposure of primiparas noncontraceptors	382.8 (4)	104.2 (7)	508.7 (5)	15.1 (3)
b. Exposure of primiparas contraceptors	685.2 (7)	33.1 (2)	1,340.1 (13)	17.8 (4)
c. Exposure of multiparas noncontraceptors	3,009.1 (29)	939.2 (62)	2,244.3 (22)	175.4 (40)
d. Exposure of multiparas contraceptors	6,461.3 (61)	440.8 (29)	6,289.9 (61)	227.3 (52)
4. Average exposure to risk of pregnancy per woman (in years)..(Totals)	3.08	2.86	3.01	3.16
a. Of primiparas noncontraceptors	0.51	0.69	0.81	0.52
b. Of primiparas contraceptors	1.44	1.58	1.54	1.48
c. Of multiparas noncontraceptors	3.47	3.73	3.74	3.90
d. Of multiparas contraceptors	4.86	4.12	4.65	4.37

In average age the women of the Chicago sample tend on the whole to be a little older than those of the New York sample, but not by amounts great enough to be very significant reproductively. The age differences probably chiefly reflect a little greater postponement of marriage on the average in Chicago than in New York, together with a little lower fertility rate, as will presently appear (the ages in table 1 being average ages at the time of record; i. e., the time of birth of each woman's most recent child).

EXPOSURE TO RISK OF PREGNANCY

In reaching a critically adequate measure of fertility it is necessary to introduce the actuarial concept of exposure to risk of becoming pregnant. In earlier work [4] the mathematical development and treatment of this concept have been fully discussed. Here it must suffice to say that, as a woman is not exposed to risk

2. These terms are used because of their common employment, rather than the more precise designations primigravidas and multigravidas, for the categories defined in the brackets. Since the definitions of the categories make the meaning perfectly clear, probably only the pedantic purist, if any one, will be annoyed by the terminology used.

3. It may be stated at this point, although space is lacking to present the detailed evidence in proof, that the New York and Chicago samples of white women are closely similar in respect of social, economic, educational and racial composition.

4. Pearl, Raymond: Factors in Human Fertility and Their Statistical Evaluation, Lancet **2**: 607-611 (Sept. 9) 1933.

of becoming pregnant when she is already pregnant or in the puerperal state, the figures given in table 2 state essentially the aggregate time in years spent during their married lives by the women in the samples while they were not pregnant or in the puerperium. Table 2 gives the aggregate exposure to risk of the two samples, in person-years, and the average number of years of exposure per woman.

The total exposure to the risk of becoming pregnant of these 7,540 women was 22,874.3 person-years, or an average for the whole lot of three years and eleven days per woman. The multiparas account for the bulk of the exposure. Thus in the New York sample while the white multiparas constituted only 64 per cent of the white women they accounted for 90 per cent of the total exposure. In the Chicago sample of whites 56 per cent of the women were multiparas, but they accounted for 83 per cent of the total exposure to risk of pregnancy. The Negroes show a similar relationship. It depends basically on a fact more clearly seen from the average figures of item 3. Primiparas as a class become pregnant with much less prolonged exposure to risk than do multiparas.

In the case of the primiparas the figures under item 4 give the average lengths of time in years, for the several groups, between marriage and first conception (beginning of first pregnancy). Thus, to take New York white primiparas noncontraceptors as an example, the figure 0.51 means that on the average these women spent only a little over six months after marriage before they were pregnant. The Chicago women in the same category exhibit an average delay between marriage and first pregnancy over three months longer (9.72 months exactly). This is the first indication of the generally slightly lower apparent innate fertility exhibited by the Chicago as compared with the New York samples, both white and Negro. As we proceed, more evidence supporting this inference will appear.

From item 4 there also appears the first indication as to the effectiveness of contraception. If the primiparas contraceptors averages of item 4b are compared with those of primiparas noncontraceptors (item 4a) it is evident that the practice of contraception has substantially increased the time interval between marriage and first conception, as it was intended and would be expected to do. This is true for all groups, white and Negro, New York and Chicago. The relative effectiveness of the contraception, as practiced, may be simply indicated by taking the ratios of the contraceptor to the noncontraceptor means. So doing shows that the delay from marriage to first conception was 2.8 times greater in New York white contraceptors than in noncontraceptors, 2.3 times greater for New York Negroes, 1.9 times greater for Chicago whites, and 2.8 times greater for Chicago Negroes. So far as this criterion may be taken as indicative, the suggestion is that the Chicago white women in the initial portion of their married lives practiced contraception less effectively on the average than did the New York women of corresponding status, although as was shown in table 1 a great many more proportionally of the Chicago than the New York newlyweds tried it.

The average exposures to risk of the multiparas (table 2, items 4c and d) state the number of years of married life spent outside the pregnant and puerperal states. These averages are higher, class for class, in the contraceptor groups than in the noncontraceptor groups, as would be expected if the attempts at birth controlling had any practical effect at all. The relative effectiveness can be simply indicated by the same device that was used for the primiparas. So doing, it appears that the New York multiparas contraceptors enjoyed 1.4 times as many years of married life free from pregnancy as did the noncontraceptors; for the New York Negroes the figure is 1.1 times, for the Chicago whites 1.2 times, and for the Chicago Negroes 1.1 times. These figures confirm, so far as they go, two well established points: that contraception is less effectively practiced by multiparas than by primiparas, and by Negroes than by whites. Comparing the New York and Chicago white samples, the suggestion again is that the attempts of Chicago multiparas at contraception were less effective than those of the New York multiparas, though proportionally more of the Chicagoans tried it.

TABLE 3.—*Pregnancy and Live Birth Rates per Hundred Years' Exposure to Risk of Pregnancy*

Items	New York		Chicago	
	White	Negro	White	Negro
5. Pregnancies experienced per hundred years of exposure to risk (totals)	84.6	99.0	70.7	99.9
a. By primiparas noncontraceptors	195.4	144.9	123.6	192.1
b. By primiparas contraceptors	69.5	63.4	64.8	67.4
c. By multiparas noncontraceptors	109.4	94.2	84.2	103.2
d. By multiparas contraceptors	68.0	101.0	62.8	93.7
6. Live births produced per hundred years exposure to risk (totals)	73.3	86.0	63.0	84.0
a. By primiparas noncontraceptors	188.6	136.3	120.9	192.1
b. By primiparas contraceptors	68.0	60.4	64.2	67.4
c. By multiparas noncontraceptors	92.0	80.7	73.1	83.8
d. By multiparas contraceptors	58.4	87.3	54.4	78.3
7. Effectiveness of contraception as practiced in lowering pregnancies experienced				
a. By primiparas (percentage lowering of rate)	64.4	56.2	47.6	64.9
b. By multiparas (percentage lowering of rate)	37.8	— 7.2 *	25.4	9.2
8. Effectiveness of contraception as practiced in lowering live births produced				
a. By primiparas (percentage lowering of rate)	63.9	55.7	46.9	64.9
b. By multiparas (percentage lowering of rate)	36.5	— 8.2 *	25.6	6.6

* Meaning that in this class of women contraception was not effective at all in lowering either pregnancy or live birth rates, since these rates were higher, by the stated percentages, in contraceptors than in noncontraceptors.

FERTILITY AND CONTRACEPTION

In table 3 are given the number of pregnancies experienced and live births produced per hundred years of exposure to risk of pregnancy in the several classes, and also the percentage effectiveness of contraception, as practiced, in lowering the pregnancy and live birth rates.

At this point it will be well to state categorically that here and elsewhere in this paper the discussion has to do with the effectiveness of the total contraceptive efforts of defined groups of persons in the sense only of lowering pregnancy or birth rates, or prolonging the

portion of married life spent free of pregnancy, when these groups are compared with similar groups in which there was no contraceptive effort whatever. The data here discussed have no bearing whatever on the question of whether birth control gadget A is better or worse than gadget B, or the degree to which either is biologically effective in reality. The discussion concerns only the comparative reproductive performance of defined groups of women, of which groups some have attempted to alter the expression of fertility by resort to contraceptive technics, whereas the other groups have made no such attempt.

In beginning the discussion of table 3 it will be well first to explain an apparent paradox in the figures. To one not accustomed to handling this sort of material and not familiar with the mathematical treatment to which it has been subjected, it may seem odd at first glance to see that 195.4 pregnancies and especially 188.6 live births resulted from each hundred years of exposure to risk of pregnancies among New York white primiparas noncontraceptors, to take them as an example. This however is physiologically all right, odd as it seems. It merely means that the time between marriage and conception was under six months in well over half the cases. If it had been exactly six months in all the cases, the figure 195.4 would have been exactly 200. A similar situation, *mutatis mutandis,* exists in all other cases in which the rates in the table are greater than 100. The intervals (in years) of freedom from pregnancy (and the puerperal state) were in each case numerically less than the pregnancies or live births experienced.

From table 3 the following inferences seem reasonable: First, the white women of the Chicago sample, in whatever class, exhibited lower fertility rates than the corresponding New York women whether measured by pregnancies or live births or whether with or without contraception. The difference between the New York and Chicago samples as wholes in respect of pregnancy rates (13.9 ± 0.7) may be regarded as very probably significant statistically, being almost twenty times its probable error. In the second place it appears that in the New York sample the Negroes, in each class except the multiparas contraceptors, exhibit somewhat lower fertility rates than the whites, while the opposite appears to be true in the Chicago sample. But, as has already been pointed out, the Chicago Negro sample is too small to give results of any firm reliability. Furthermore, it is doubtful that the New York white-Negro differences would be confirmed in larger samples.

Turning now to items 7 and 8, the suggestion again is that the Chicago white women were less effective contraceptors than the New York white women, class for class. The differences in the percentages measuring effectiveness of contraception (items 7 and 8) are statistically significant to a high degree of probability. Thus considering the live birth rates (item 8) the percentage lowering in contraceptor as compared with noncontraceptor classes is less in the Chicago sample than in the New York sample by 17.0 ± 1.3 per cent for primiparas and by 10.9 ± 1.0 per cent for multiparas. Among the multiparas the Negroes evidently practice their contraception much less effectively than the whites, but among the primiparas the racial differences are not so marked.

REPRODUCTIVE WASTAGE

Pregnancies that terminate in miscarriages, abortions or stillbirths—in short, in any other way than by live births—represent reproductive wastage. The organism has been put to physiologic trouble to no useful end. The extent of this wastage quantitatively is shown in table 4. In this table the reproductive wastage rates per hundred pregnancies experienced as given in item 10 are obtained by subtracting each figure of item 9 from 100.

Among the white women the reproductive wastage rates are somewhat lower in the Chicago than in the New York sample. So far as concerns the total group they are significantly lower. This is possibly connected with the greater prevalence of contraceptive efforts among Chicago women. Reproductive wastage rates in both cities are much higher in multiparas than in primiparas. This result accords with all experience regarding the subject. The wastage rate rises with parity.

TABLE 4.—*Reproductive Wastage*

Items	New York		Chicago	
	White	Negro	White	Negro
9. Live births produced per hundred pregnancies experienced (totals)	86.7	86.9	89.1	84.1
a. By primiparas noncontraceptors	96.5	94.0	97.8	100
b. By primiparas contraceptors	97.9	95.2	99.1	100
c. By multiparas noncontraceptors	84.0	85.6	86.8	81.2
d. By multiparas contraceptors	85.8	86.5	86.6	83.6
10. Reproductive wastage per hundred pregnancies experienced (totals)	13.3	13.1	10.9	15.9
a. Among primiparas noncontraceptors	3.5	6.0	2.2	0
b. Among primiparas contraceptors	2.1	4.8	.9	0
c. Among multiparas noncontraceptors	16.0	14.4	13.2	18.8
d. Among multiparas contraceptors	14.2	13.5	13.4	16.4

Although the samples are not large enough to be completely probative, the figures bring out an interesting point to which attention has not hitherto been called. There is an apparent tendency, with the Chicago white multiparas forming the only exception, for the reproductive wastage rates to be lower among the contraceptors than among the corresponding classes of noncontraceptors. The entire material at our disposal will be analyzed relative to this point as soon as possible, because it is a matter of considerable interest especially in relation to the controversy that has gone on for years as to whether birth control is physiologically harmful to the female reproductive mechanisms.

INDUCED ABORTIONS

The reproductive wastage figures of table 4 indicate the totals of all such wastage. Because of the fact that deliberately induced abortion is resorted to by many a harassed female as an adjunct to, or surrogate for, contraceptive efforts, it is desirable to examine separately the rates for abortions admittedly induced by the woman herself or by some other person acting criminally with her consent to relieve her of her difficulty. It is to be understood that abortions ethically induced for therapeutic reasons by reputable physicians are not included in the figures of table 5. They include only wilful termination of unwanted pregnancies.

The implications of table 5 are thought provoking. The 1,328 New York white multiparas contraceptors

admit that one in every twenty-four pregnancies they have experienced in their aggregate reproductive lives has been terminated by a successful criminal abortion; furthermore, on their own admission, roughly one in every eight of them has had at least one induced abortion; and finally they admit that approximately 30 per cent of the aggregate reproductive wastage they have experienced has been due solely to criminal abortions induced by themselves or by somebody else. It is probable that the admitted figures are short of the whole truth, though by how much it is impossible to say. Current statements in popular lay journals about the frequency of criminal abortion in the general population considerably exaggerate any conclusion that can be supported by critical scientific evidence. It is true, as indeed our unpublished records show, that a great many women attempt to induce abortions but fail. A careful critical study of individual records leads me to the opinion that the figures of table 5 are not greatly below the unknown reality, and certainly not as much below as some would have us believe.

While the New York multiparas contraceptors have been discussed first as an example, the picture presented by table 5 as a whole is not exactly a pleasant one from any point of view. Remember that the table contains only women living in wedlock who have been married only once, and are free of gynecologic disease—in other words, generally not people of loose morals. These are records of families, living together and rearing children, on the whole representative of the most substantial sort of the traditionally typical American family at each social and economic level represented in the data, from "very poor" through "well-to-do and rich." The figures as to purposefully induced abortion are not estimates or wild exaggerations based on emotional opinions. On the contrary they are records of actual happenings, which admittedly probably somewhat understate the complete facts but can therefore be accepted with greater confidence as establishing minimal values, below which the truth cannot lie.

What emerges is that, in our two largest cities, samples of white child-bearing women that are known to be fairly representative of the population (cf. evidence in Third Progress Report cited earlier) from which they come are exhibiting the following kind of behavior:

1. Deliberately causing from one sixth to more than one fifth of their aggregate reproductive wastage.
2. By so doing voluntarily taking one of the most serious risks to their very lives as well as to their future health and well being that a woman can take short of suicide or major self mutilation.
3. At the same time contributing substantially through the direct and indirect taxes they, as families, pay to the support of an intensive and statistically highly successful public health program of keeping babies alive and in good health.

Such a picture tallies badly with our national pride in being a socially enlightened, intelligent and progressive people.

Perhaps the most interesting thing that table 5 shows—a point that so far as I am aware has not hitherto been supported by numerical evidence as distinguished from a priori opinion—is that resort to wilfully induced abortion is much more common among women who practice birth control than it is among women who do not, so far as may be judged by the evidence afforded by these two samples. There is reason to believe, and it is expected that later in another place it will be demonstrated, that New York and Chicago are in no wise peculiar in this respect but that our total material will show the same thing. The result is one to be expected on the lower levels of behavioristic psychology. The abortionist is called on to rectify the inadequacies of birth control.

TABLE 5.—*Induced Abortions (Self or Criminal)*

Items	New York		Chicago	
	White	Negro	White	Negro
11. Induced abortions (self or criminal) per hundred pregnancies experienced (totals)	2.8	0.9	1.6	0.9
a. Among primiparas noncontraceptors	0.3	0	0.3	0
b. Among primiparas contraceptors	0.4	0	0	0
c. Among multiparas noncontraceptors	1.8	0.3	0.7	2.2
d. Among multiparas contraceptors	4.2	2.2	2.7	0
12. Percentage of total reproductive wastage due to induced abortions	21.0	6.6	15.1	5.8
a. Among primiparas noncontraceptors	7.7	0	14.3	0
b. Among primiparas contraceptors	20.0	0	0	0
c. Among multiparas noncontraceptors	11.4	2.4	5.2	11.8
d. Among multiparas contraceptors	29.7	16.7	20.0	0
13. Induced abortions per hundred women at risk	7.3	2.4	3.5	2.9
a. Among primiparas noncontraceptors	0.3	0	0.3	0
b. Among primiparas contraceptors	0.4	0	0	0
c. Among multiparas noncontraceptors	6.9	1.2	2.2	8.9
d. Among multiparas contraceptors	13.9	9.3	7.8	0

So far as the present sample may be taken as indicative, the suggestion is that the Chicago white women resort somewhat less to induced abortion than the New York women. Larger samples would be necessary to be quite sure about this, but the suggested trend is probably real. The induced abortion rate tends to be lower among the Negroes than among the whites, as is clearly shown by the New York figures.

SUMMARY

Certain aspects of the reproductive histories of 3,951 women dwelling in New York City and 3,589 dwelling in Chicago were analyzed and compared. All the women in both samples were living in wedlock, had been married only once, and were free of any recognized form of gynecologic disease. The age distribution of the women was substantially similar in the two samples, with somewhat greater average ages in the various subgroups of the Chicago sample, but not sufficiently so to affect any result.

1. The white women of the Chicago sample appear to be somewhat less fertile on the average as a group than the white women of the New York sample, whether measured by pregnancies experienced or live births produced.

2. Attempted contraception was more frequent among the Chicago than among the New York white women, the percentage of contraceptors being 64 in the former city and 53 in the latter.

3. As indicated by average lapse of time between marriage and the beginning of first pregnancy in primiparas, contraception as actually practiced was more effective among the New York women than among the Chicago women. The same result, but with a smaller quantitative difference, characterized the relative effectiveness of contraception as practiced by the multiparas, when measured by the criterion of the average number of years of married life spent in the nonpregnant state.

4. As measured by the degree of lowering of pregnancy and live birth rates per hundred years of exposure to the risk of becoming pregnant, the Chicago white women again were, as a group, to a substantial degree less efficient contraceptors than the New York women.

5. Reproductive wastage rates in general, and induced abortion (self or criminal) rates in particular, were lower among the Chicago white women than among the New York women.

6. The data from both cities indicate that women practicing birth control resort to criminal abortion more frequently than do noncontraceptor women.

7. Attempted contraception was less frequent and less effective among the Negroes than among the whites in the samples from both cities.

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ELECTRICAL DAMAGE TO THE BRAIN

A CASE PRESENTING A HYPERKINETIC BEHAVIOR SYNDROME

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The recent literature has paid considerable attention to the involvement of the central nervous system by electric shock. Histologic studies have shown the chief features to be fine petechial hemorrhages in the brain.[1] Clinical studies include a range of involvement from peripheral nerve lesions and myelopathies to brain lesions.[2] The paper of Naville and de Morsier [2] offers a comprehensive review of both the initial and the later symptoms. Their article mentions early loss of consciousness, convulsions and even peripheral symptoms and discusses the cerebral symptoms as produced by local necrosis of bone due to heat. It mentions meningitis, brain abscesses and even cataracts. It challenges the frequency of psychotic symptoms. However, psychoses have been reported.[3] In these reports, apparently the feature of a hyperkinetic syndrome, prominent in postencephalitis and in certain cases of cerebral trauma, has not been emphasized.

We have recently studied a patient whose outstanding symptomatology resembled a type of behavior disorder common in the postencephalitic group, and we believe the case to be of sufficient interest to report.

1. Pritchard, E. A. B.: Changes in the Central Nervous System Due to Electrocution, Lancet **1**: 1163 (June 2) 1934. Langworthy, O. R.: Abnormalities Produced in the Central Nervous System by Electrical Injury, J. Exper. Med. **51**: 943 (June) 1930; Nerve Cell Injury in Cases of Human Electrocution, J. A. M. A. **95**: 107 (July 12) 1930. Löwenstein, K., and Mendel, K.: Hirnschädigungen durch elektrische Einwirkung (electrotraumatische Encephalomyelosen), Deutsche Ztschr. f. Nervenh. **125**: 211, 1932.

2. Critchley, Macdonald: Neurological Effects of Lightning and of Electricity, Lancet **1**: 68 (Jan. 13) 1934. Naville, F., and de Morsier, G.: Neurologic Symptoms Following Industrial Injuries, Rev. neurol. **1**: 327 (March) 1932.

3. Brandis, W.: Hysterische Pseudodemenz, Med. Klin. **22**: 1615 (Oct. 15) 1926.

REPORT OF CASE

History.—The family history is essentially negative as far as neuropathic ancestry is concerned.

Clarence S. Jr. had a normal birth and splendid early development. He grew physically and mentally; his school work was excellent, and he appeared to be a well adjusted, healthy youngster.

In May 1934, at the age of 12, on a dare from his companions, he grasped a high tension wire and was thrown to the ground. (It was reported that he had received a shock of 4,000 volts.) He was taken to the hospital unconscious, his left palm burned and with burns across the buttocks, shoulders and head. In the hospital muscular twitchings and later generalized convulsions developed.

For about two weeks the youngster was critically ill and wildly delirious. In his delirious state he was troubled by hallucinations, rarely auditory, frequently visual. The hallucinations had a zooscopic content; he saw pelicans marching, then fighting, being chased by large snakes. At times he would see sheep running and jumping. Occasionally he saw people swimming in a pool.

During this period he had extensive surgical treatment to the deep burns of the palms and fingers. Two of the fingers were amputated and several tendons sloughed. There were large burns of the scalp with necrosis down to the bone. The attending surgeon, Dr. Bloor, thus described the condition June 16: "The burned area of the scalp and skull showed a charred surface with dead bone sloughing away, leaving a large hole. There were several smaller holes the size of a matchhead, penetrating through the entire skull down to the dura."

Early in June there was improvement, though he still had occasional hallucinations and muscular twitchings. Toward the end of July the sloughing areas of the skull bone were improving and a plastic repair of the hand was undertaken. In August there were further operative procedures on the scalp, with an attempt to cover the denuded areas. By the middle of August the youth was improving and was discharged from the hospital.

He was readmitted on several occasions for operative procedures on the palm and scalp.

Progress.—From 1934 up to the present the patient has shown considerable progress from the physical standpoint. The hand has healed, though with a residual deformity of the palm and fingers. There have been occasional recurrent suppurating processes in the scalp.

The chief difficulty was a gradually developing behavior problem which will be presented in detail.

Present Status.—According to the mother, he has been a changed boy since the accident. At first he was sick, weak and tired and was treated as an invalid. When he improved, however, and was asked to go back to school, it was found that he could not attend to his studies. Every report card showed deficiency. When corrected, he would become rebellious. "He is different. He now uses awful, vile language. He condemns me and his dad. If things don't suit him, he is like a perfect maniac. I must hold him or he will kill us. Once he knocked his father down. He used to be an affectionate boy, but now he punches me. He cries out 'I want to hurt somebody. I would give anything to hurt some one.' He seems like two different people. At times he will come into the room cheerfully, but if I happen to correct him, he will shriek out and swear at me.

"His behavior is very restless. He is always into things. He may walk back and forth continuously. He will pick on things. He started to pick on the lamp shade and picked it to pieces. At school he does not study. He promises that he will do good work but never fulfils his promise. He seems full of mischief. One day he brought a pigeon into the classroom."

The patient himself says that he cannot concentrate, but at times his story is contradictory. He may even claim that he is a model boy working very hard from morning to night. "When the doctor used to dress me, it was so painful I thought he would kill me. I have decided to become a doctor. I know I will be a good doctor. You see, I have suffered through it all and I am on the road to success. I do not feel very good. I like to try something different every day."

Examination.—General: The youth is now a tall, well developed, healthy looking youngster of 14, who impresses one by

his energetic, enthusiastic activity. He greeted the examiner with a broad smile and warm hand-shake and spoke cheerfully of his interest in our new hospital and of his own ambition to become a doctor. He seemed to ignore the scarred, deformed hand and was not introspective about the denuded area on the scalp.

Psychic Status: At first meeting the patient impressed one as an alert, bright, normal youngster. However, as he was studied more carefully one saw a restless overactivity. For a moment he would be sitting comfortably in a chair; then he would spring into his bed. A few minutes later he might curl up on the window sill and gaze out into space. He showed a fleeting interest in a large variety of subjects. He would observe the doctor's stethoscope, his tie, the furniture, would make a comment on the demeanor of the nurse, refer to the psychologist as a "four-eyed wench." He seemed to show no respect for authority and position. His stories were frequently contradictory with a tendency to confabulate. Most of the time he was animated, energetic and self assertive, although with little insight into his own status. This peculiar behavior reaction was studied by the routine Binet test and by the Rorschach psychogram.

Our psychologist, Mrs. Margaret Barnes, did a routine Stanford achievement test, as well as a Babcock test for mental deterioration. Her report is summarized in the accompanying tables.

Comments.—Mrs. Barnes summarizes her examination as follows: "Clarence cooperated quite well on the Babcock test, apparently because in this test there is something new being presented continually. He got restless during the vocabulary test and fumed about the number of words there were in the list. He came the second time readily enough, but he repeatedly said that he was afraid he would be too late to return to the x-ray department before it closed, although he was assured that this was not the case. He refused to do the reading test after he first looked at it, saying that it was too easy, but he began working on it after it was explained that it became progressively harder. He started to work on the arithmetic without waiting for directions and was annoyed when stopped for directions.

"The Babcock test rated him as having barely normal average intelligence, but he showed signs of general mental deterioration on it. However, when new learning is contrasted with old knowledge, there is a definite difference, about four and one-half years, showing that he acquires new learning with difficulty

TABLE 1.—*Babcock Test for Mental Deterioration*

Mental level (13 years)	13.5
Efficiency score	13.19
Efficiency index	—0.31
Old learning tests (old knowledge)	13.8 years
New learning	9.1 years
Difference	4.7 years

and not with anything like the facility normal to a boy of his intelligence."

The Rorschach test was performed by Dr. Marguerite Hertz and several excerpts of her results are here summarized: "Intellectually, Clarence is of low average intelligence. However, in the performance of the test his attention wandered considerably. He fidgeted, moved restlessly, interrupted the examination by chance inquiries and remarks on irrelevant subjects. He could not concentrate, seemingly detracted by extraneous stimuli or by his own ideas. On the nonintellectual side he appeared more ascendant than submissive. His thinking lacked perseverance. It was more analytical than synthetic."

The roentgenogram of the skull, taken by Dr. Eugene Freedman, is reported as follows: "Films of the skull show an extensive bone defect throughout the posterior portion of the left parietal bone. The bone defect measures about 7 to 8 cm. in diameter. Its borders are smooth and there is no evidence of sequestrum formation. There are only very slight sclerotic changes around the edge of the defect. The findings are consistent with the clinical diagnosis of an old osteomyelitis in the left parietal region, which roentgenologically does not show any evidence of activity at the present time."

A routine neurologic examination was essentially negative. The pupils were equal and regular and reacted to light and in accommodation. The disks show no changes. Visual fields were complete. Hearing and speech were normal. Muscular tone in the arms and legs was good. The reflexes were hypoactive; knee jerks were acute only on reenforcement. The Babinski reaction was negative.

The urine and blood were normal. The basal metabolic rate was normal.

Summary.—As a result of an electric shock, a previously normal, well adjusted boy of 12 developed severe nervous symptoms. In the initial phase there was unconsciousness, followed by a period of convulsions, and then delirium. After recovery from this acute mental illness the youth presented a tendency to overactivity with psychomotor restlessness, resulting in difficulties at home and in school.

TABLE 2.—*New Stanford Achievement Test: Advanced, Form V*

	Educational Age	Grade
Reading:		
Paragraph meaning	12-10	7B
Word meaning	15-6	9A
Spelling	11-2	5B
Arithmetic (computation)	11-0	5B

COMMENT

This hyperkinectic behavior disorder will be analyzed and explained in the following discussion:

The probable neuropathologic condition in this case is that of hemorrhagic change in the cortex and perhaps in the subcortical areas similar to that described in cases of human electrocution and in animal experiments by Langworthy.[1]

In this instance the chief disorder produced by the pathologic changes is a behavior problem, and it may be fruitful to consider the psychic processes through which such a disorder results.

In the functioning of the adult mind, efficiency depends on selectivity of stimuli and reactions. Not all stimuli should be reacted to; not all sensations should receive one's attention. With growing years there develops a cortical control, serving the function of inhibiting unnecessary reflexes. For example, the infant normally shows a Babinski reflex, which gradually disappears. Likewise, the developing cortex learns to ignore various sensations and stimuli and not to devote attention to certain impressions. This permits the individual to concentrate on whatever more vital or more important subject is before him. Concentration therefore depends on the ability to inhibit interest from extraneous stimuli. Children in their first and second years of life shift their attention quickly from object to object, apparently attracted by some superficial quality. When watching a child at play, one sees the youngster momentarily handling one plaything and quickly turning to the next object, which, by sound, color or motion, attracts attention. Only in the course of time will that child develop a sustained interest in one object, examining it thoroughly and intensively and at the same time ignoring other stimuli. This power to concentrate, to inhibit interest from unimportant stimuli, is of vital importance to an individual. Indeed, success depends on it. Mentally retarded individuals, particularly idiots, hardly ever acquire this ability. For example, a youngster with a cerebral birth defect now suffering from epilepsy comes to our office at monthly intervals. Within a moment he jumps from his chair, moves the paper weight, seizes the chart, scribbles with our pencil or

pen, hurries to the window and pulls the window shade, utters some comment, then mounts the scale and is off again.

Once this inhibiting function is acquired, it may be diminished or destroyed by certain major damage to the brain. The outstanding disease process that affects this function is encephalitis. It is well known [4] that children who have suffered from lethargic encephalitis present behavior disorders, often characterized by distractability and hyperkinesis. Recently a similar clinical picture has been drawn for children who have sustained severe cranial trauma. Blau [5] reported cases of children who have suffered cranial trauma who developed this same restless, purposeless hyperactivity.

The behavior of our patient is quite similar to the manifestation of certain retarded individuals and of those who have suffered encephalitis or brain trauma. At first meeting he appears vivacious, lively and talkative. When studied critically, one is impressed by his hypermotility, by his rapid change from one subject to another. At times the rapid change from subject to subject matter in his speech resembles the flight of ideas so common among manic patients. His hyperkinetic tendency shows itself in his leaping to the bed and then off to gaze through the window, back to finger the doctor's tie, and so forth.

The behavior difficulty at home arises from the clash between the uncontrollable hyperkinetic tendency and the unsuccessful efforts of teachers and parents to regulate it. When Clarence was commanded by his teacher to study for an hour and gave his "promise" to do so, he was able to maintain interest only for several minutes. Then he began to inspect the cover of the book, open and close the desk, gaze at the clothes of the other pupils, the way their hair was combed; then his gaze would be directed to the windows, the sky, the song of the birds. At the end of the hour he knew very little of the contents of the chapter he was supposed to read. The teacher upbraided him and the next day he did not appear at school. At home there was similar friction. He was given duties which he failed to perform. When reprimanded he would reply by lying, cursing and fighting. The patient can be well understood in the light of Bond and Appel's report [4] that such hyperkinetic children do better when removed from the usual restraint of parents and teachers. Obviously the attempt to curb the irresistible impulses would prove unsuccessful.

One may wonder why a hyperkinetic disorder occurs in youth and not in adults. With traumatic damage in older persons we have frequently seen depressed states or paranoid reactions. It seems as though in youth and childhood interest and attention are often directed outward. This "extroverted" tendency arises out of a child's eagerness to learn. Such curiosity may not be primary; it may be aroused by the novelty, the strangeness, the unusualness of every situation. A like curiosity appears in an adult traveling for the first time amid new surroundings. For example, we recently drove in New York City with a companion who was there for the first time. His reaction to the environment was similar to that of Clarence's continuous hyperkinetic distractability. He looked downward to hear the roar of the subway, up at the elevated trains. He strained his neck to see the tall buildings. He was surprised at the large crowds on Fifth Avenue. He made comments and exclamations. The other members of the party, who had been in New York on several occasions, looked about, half bored, and more concerned with the visceral feelings of hunger.

As a youngster and adult are walking along the street, apparently looking at the same scenery, there may be a fundamental difference in the pathway of the major mental interest. The child looks out intently, notes keenly, observing and recording in his memory, reacting with exclamations and numerous questions. The adult (if not on a scientific journey of observation) likewise looks out, but as he notes these familiar surroundings his mind wanders inwardly to memories which are recalled and to internal problems and complications. Though looking outward at what might be glorious scenery, he may heave a deep sigh because of an internal sadness or may chuckle because he recalls a witticism he heard the night before.

When the cortex has been damaged by a virus, mechanical or vascular change, the impairment affects the most difficult function. In the youngster this consists of reducing distractability and increasing concentration. A loss in cortical function reduces this progress and accentuates the distractability. In older individuals, a similar loss of cortical control might reduce the ability to look outward, to study reality. Thoughts are more quickly introverted; the outer environment is less readily understood. In the face of physical difficulties and a misunderstood environment there is a tendency toward worry and suspicion, all of which leads to a depressed or paranoid reaction.

Blau [5] postulates the theory that this hyperkinetic syndrome might be due to frontal lobe damage. This is a possibility in our case because there are no localizing signs.

Aside from the organic brain change, one must consider the influence of several other factors: the scars in the scalp and the defect in the skull bone, together with the fear of possible further brain damage. We do not consider this an important factor, because Clarence does not manifest anxiety or depression. One must consider also the possible effect of the scarred and deformed hand and various scars on the body. Clarence, however, minimizes these difficulties. His story does not consist of a shyness or backwardness produced by these deformities. The major disorder is therefore to be interpreted in the light of the cortical brain change and not in that of the surface scars and deformities.

It appears as though a similar behavior disorder may result from brain trauma, whether it is produced by electricity, direct mechanical violence or infection. The age of the patient is the more important factor in the type of the manifestation.

CONCLUSION

An apparently well adjusted, normal youngster, after he sustained a serious brain damage from electricity, developed a profound behavior disorder, characterized largely by hyperkinetic tendencies. Apparently a like picture may result from a brain lesion in youth, whether the lesion arises from virus, mechanical or electrical injury.

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4. Bond, E. A., and Appel, K. E.: The Treatment of Behavior Disorders Following Encephalitis: An Experiment in Reeducation, the Commonwealth Fund Division of Publications, New York, 1931.

5. Blau, Abram: Mental Changes Following Head Trauma in Children, Arch. Neurol. & Psychiat. **35**: 723 (April) 1936.

EXCESSIVELY RAPID HEART RATES

REPORT OF A CASE WITH AUTOPSY

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The ventricles of the human heart have rarely been observed to pulsate at a rate approaching 300 per minute. Only sixteen cases in which there was a ventricular rate of 280 or over were found in the literature (table 1). In ten of these the rate was confirmed by graphic tracing; in the remaining six the count was by stethoscope only. A ventricular rate of 300 beats per minute was recorded electrocardiographically in four cases. In no case was an electrocardiogram published showing a rate that exceeded 300 per minute. Werley [1] published a polygram presenting a ventricular rate of 307. Blackford and Willius [2] stated that a patient having auricular flutter with a two-to-one block entered their office during a paroxysm of one-to-one response which lasted nearly two hours. A heart rate of 320 was counted by means of the stethoscope. Later during the attack an electrocardiogram was taken which showed a rate of 300 beats per minute. Duken [3] reported that in the case of an infant whose heart rate was 300 by stethoscopic count an electrocardiogram showed a rate of what appeared to be 320 beats per minute but that the tracing was not distinct enough to differentiate the complexes definitely. He did not publish the electrocardiogram. These three are the only reported rates above 300.

It seems probable from this review that the upper limit at which the ventricles of the human heart can maintain their rate of pulsation is approximately 300 per minute. Lewis and his associates [4] found that when in animal experiments the auricles of the mammalian heart were stimulated to rates surpassing 300 per minute the ventricles beat at a slower rate. The auriculoventricular node, because of the greater length of its refractory period, failed to transmit each stimulus to the ventricles and dropped beats or two-to-one rhythm occurred. Two-to-one response to stimuli appeared in the auricular muscle at rates of approximately 450 per minute, in the auriculoventricular node at rates approaching 300 per minute, and in the ventricular muscle at an intermediate rate.

In the following case a ventricular rate of from 310 to 313 beats per minute was recorded electrocardiographically. This rapid rate occurred during an attack of streptococcic meningitis in an infant 4½ weeks of age. When the patient came to autopsy three weeks later the heart was found to be grossly normal. A microscopic examination of tissue showed no evidences of infection or fibrosis of the heart muscle. The electrocardiogram, in addition to presenting a rate faster than any so far recorded in the literature, presents an interesting problem of interpretation (fig. 1).

REPORT OF CASE

A colored female child, born Jan. 16, 1934, was admitted to the Children's Hospital February 15, thirty-one days after birth, because of difficulty in breathing, rapid heart action and attacks of vomiting. The infant had been normal at birth and had weighed 7 pounds 8 ounces (3.4 Kg.). The mother's health was good and she had a normal pregnancy and delivery. The infant was breast fed and at the time of her admission weighed 9 pounds 2 ounces (4.1 Kg.). The mother stated that the child had apparently been well until 3 o'clock the morning of the 15th, when she noticed that it was breathing with difficulty. This condition remain unchanged. Beginning at 6 o'clock the child had several attacks of vomiting and later on during the morning it passed a small amount of blood by rectum.

On admission the temperature was 99 F. and the respirations were 40 per minute and irregular. The heart rate was too rapid to count accurately, but it was estimated to be over 300 beats per minute. The heart was not enlarged. A faint systolic murmur was heard intermittently in the mitral area. The lungs were clear. The abdomen was distended. The liver and spleen were not palpable.

On February 17 the hemoglobin was 55 per cent, the red cell count 3,200,000 and the white cell count 9,500, of which 37 per cent were lymphocytes and 63 per cent polymorphonuclears. An examination of the urine was essentially negative. February 19, the fourth day following the onset of the rapid rate, an electrocardiogram demonstrated an auriculoventricular rate of 310 beats per minute in leads 1 and 2 and 313 per minute in lead 3 (fig. 1). A teleroentgenogram taken February 23 showed slight enlargement of the heart (fig. 2). A diagnosis of paroxysmal tachycardia was made by one of the house physicians.

On the day following admission the ventricular rate varied between 150 and 300 beats per minute. During the subsequent ten days the heart was occasionally observed to be beating at approximately 300 beats per minute, although it more often ranged between 130 and 180, with the radial and temporal pulses coinciding. During the remaining ten days of the infant's life the heart rate ranged from 130 to 180. An electrocardiogram taken March 2 demonstrated an auriculoventricular rate of 130 beats. Otherwise the electrocardiogram was normal (fig. 3).

The patient continued to have an elevated, fluctuating temperature ranging from 99 to 105.2 F. She steadily lost weight. February 27 the hemoglobin was 72 per cent, the red cell count 4,300,000 and the white cell count 16,800, of which 27 per cent were lymphocytes and 73 per cent polymorphonuclears. March 3 a catheterized specimen of urine showed a few white blood cells, occasional red blood cells and a few hyaline casts. March 6, considerable swelling developed over the left upper part of the chest and about the base of the neck on the left side extending out to the point of the shoulder. A roentgenogram taken on the same date demonstrated a fusiform swelling in the middle third of the left clavicle, the upper border of which was slightly irregular. The blood count at this time showed the hemoglobin to be 57 per cent, the red cell count 3,000,000 and the white cell count 25,000, of which 14 per cent were lymphocytes and 85 per cent were polymorphonuclears. On the following day the patient developed erysipelas involving the left side of the neck and the left shoulder. March 8, the twenty-first day after admission to the hospital, the patient died.

At autopsy the meninges were found to be injected and to show a grayish exudate, which covered the surface of the brain. The heart was normal in size and appearance. The musculature was firm. The foramen ovale and ductus arteriosus were closed. The right pleural cavity contained about 15 cc. of yellow blood-tinged fluid. The right lung was of a deep grayish purple, with evidence of atelectasis. In the lower lobe an irregular reddish gray area, approximately 2 cm. in diameter, extended internally about 1 cm. and had the appearance of an infarct. On section this area was found to be superficial and not consolidated. The left lung was moderately congested. The liver was enlarged 3 cm. below the costal margin in the right midclavicular line. On section it was grayer than usual, possibly because of toxemia. The kidneys, spleen and adrenals showed evidences of passive congestion. Microscopic examination of tissue showed that in the meninges the pia-arachnoid was thickened and that there was an infiltration of leukocytes, round cells predominating, with some polymorphonuclears. Some disintegrating material was also present. The underlying substance was edematous. The muscle fibers of the heart appeared to be separated more than usual, possibly because of edema. No evidence of inflammatory reaction was

Dr. P. A. McLendon of Washington furnished the opportunity of observing this case, Dr. E. C. Rice made the postmortem report, Dr. R. M. Choisser made the microscopic study of tissue and Dr. Paul D. White contributed valuable suggestions to the reporting of the case.

1. Werley, Gottlieb: Paroxysmal Tachycardia, with Ventricular Rate of 307, in a Child Four Days Old, Arch. Pediat. **42**: 825-826 (Dec.) 1925.
2. Blackford, John M., and Willius, F. A.: Auricular Flutter, Arch. Int. Med. **21**: 147-165 (Jan.) 1918.
3. Duken, J.: Ueber eine typische Form der paroxysmalen Tachycardie im Säuglingsalter, Arch. f. Kinderh. **99**: 65-72 (April 28) 1933.
4. Lewis, Thomas: The Law of Cardiac Muscle, with Special Reference to Conduction in the Mammalian Heart, Quart. J. Med. **14**: 339-351 (July) 1921. Lewis, Thomas; Drury, A. N., and Iliescu, C. C.: Some Observations upon Atropine and Strophanthin, Heart **9**: 21-53 (Dec.) 1921.

noted. The alveoli of the lungs contained a large amount of albuminous fluid. Atelectasis was marked in some sections. In the tissues of the liver there were evidences of chronic passive congestion with collections of leukocytes and proliferation and infiltration of connective tissue cells. The appearance of many of the hepatic cells was suggestive of toxic degeneration. The follicles of the spleen were much compressed by an increased amount of red blood cells. The reticulum was prominent. Collections of brownish pigment were found throughout nerve fibers or of nerve cells in any portion of this section. In some areas there was a very mild fragmentation of the muscle fibers. The papillary muscle was well developed. A section through the heart at the upper portion of the septum close to the atrioventricular junction revealed several groups of sympathetic nerve cells located beneath the endocardium. These cells were large, being six times the diameter of a red blood cell, and they had a faintly basophilic cytoplasm and two or three protoplasmic processes extending from each cell body.

TABLE 1.—*Summary of Reported Cases of Excessively Rapid Heart Rates*

Number	Author and Date	Sex, Color, Age	Associated Diseases	Arrhythmia	Attacks, Duration and Number	Ventricular Rate	Graphic Tracing	Symptoms Produced by Rapid Heart Action	Outcome	Necropsy
1	Mackenzie, 1911, 1918	♂ W 47 yrs.	Mild typhoid prior to onset	Auricular flutter with 1 to 1 response	30 to 60 minutes, several attacks	290-300	Phlebogram	Prostration and weakness	Resumption of normal rate	
2	Lewis, 1915	♀ W 3 mos.	Not stated	Auricular flutter with 1 to 1 response	"Several hours"	270-290	Electrocardiogram	None present	Not stated	
3	Koplik, 1917	♂ W 22 mos.	"Grip" prior to onset	Paroxysmal auricular tachycardia	"A few days," several shorter attacks	224-288	None at 280 or over	Cyanosis, dyspnea, passive congestion during first attack	Resumption of normal rate	
4	Blackford and Willius, 1918	♀ W 32 yrs.	Exophthalmic goiter	Auricular flutter with 1 to 1 response	"Nearly 2 hours," many attacks	300	Electrocardiogram	None present	Resumption of normal rate following thyroidectomy	
5	O'Flyn, 1925	♀ W 8 mos.	Diagnosis undetermined; "intestinal irritation"	Paroxysmal auricular tachycardia	8 days, 2d attack lasting 24 hours	200-300	None	At times cyanosis, passive congestion	Resumption of normal rate	
6	Werley 1925	♂ W 4 days	Diagnosis undetermined	Paroxysmal auricular tachycardia	Several hours, 2 attacks	300-307	Polygram	Cyanosis	Death, 3d day after onset	Widely patent foramen ovale, congestion of cardiac vessels
7	Sachs, 1926	♂ W 3 yrs.	Heart disease	Paroxysmal auricular tachycardia	Several hours, 3 attacks	280	Electrocardiogram	Cyanosis and dyspnea	Death 1 year after onset	Myocarditis, dilatation, hypertrophy
8	Colgate and McCulloch, 1926	♂ C 3½ wks.	None present	Paroxysmal auricular tachycardia	2 hours or more	291	Electrocardiogram	Dyspnea, enlargement of liver	Resumption of normal rate	
9	Russell and Ellison, 1927	♀ W 15 mos.	"Congenital heart disease"	Paroxysmal auricular tachycardia	5 days, 2d attack 3 days, rate 240	290-300	Polygram	At times cyanosis and restlessness	Resumption of normal rate	
10	Herapath, 1928	♂ W 17 yrs.	Influenza prior to onset	Auricular flutter with 1 to 1 response	Many brief attacks following exertion	288	None	Dyspnea	Resumption of normal rate	
11	Langley, 1928	♂ W 14 yrs.	None present	Paroxysmal auricular tachycardia	A few brief attacks	300	Electrocardiogram	None present	Resumption of normal rate	
12	de Bruin, 1930	♂ W 5 wks.	"Probable encephalitis"	Paroxysmal auricular tachycardia	Duration not stated, several attacks	250-280	None	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
13	Duken, 1933	♀ W 8 wks.	Diagnosis undetermined, "bloody vomitus and stools"	Paroxysmal auricular tachycardia	3 days, 2 shorter attacks	200-300	None	Cyanosis, passive congestion, one attack of syncope	Resumption of normal rate	
14	Bunn, 1933	♂ W 50 yrs.	Exophthalmic goiter	Paroxysmal ventricular tachycardia	5 hours, single attack	300	Electrocardiogram	Collapse, weak pulse, pulmonary edema	Resumption of normal rate	
15	Farr and Wegman, 1935	♂ W 3½ wks.	None present	Paroxysmal auricular tachycardia	10 hours, 6 attacks over 8½ months	300	Electrocardiogram	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
16	Clarke, 1935	♂ W 1 wk.	None present	Paroxysmal auricular tachycardia	51 hours, several attacks for 5 days	300	None	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
					Additional Case					
17	Lyon, 1937	♀ C 4½ wks.	Streptococcic meningitis	Auricular flutter with 1 to 1 response	10 hours, several attacks for 10 days	310-313	Electrocardiogram	Dyspnea	Death, 3 weeks after onset	Heart, normal

the sections of the spleen. The tubular epithelium of the kidneys was poorly staining and much swollen, representing evidence of the toxic effect on the organ. An anatomic diagnosis was made of (1) purulent meningitis, (2) empyema, right, (3) bronchopneumonia and atelectasis, (4) subacute hepatitis and (5) erysipelas.

A microscopic study of tissue taken from the interventricular septum showed cardiac muscle fibers which were small, thin and closely approximated to one another, with round nuclei which took a pale basophilic stain. The endocardium was smooth, unbroken, and lined by an endothelium and a basement membrane of areolar connective tissue. The capillaries in this tissue were abundant, moderately dilated, and congested with red cells of the nonnucleated variety. There were no evidences of The cytoplasm was clear. Under high power, numerous small granules were visible. The nucleus was markedly hyperchromatic and of an even texture throughout. None of its finer markings could be made out. A few small nerve bundles could be traced for a short distance down beneath the endocardium. A section through the right auricle and ventricle, taken in the longitudinal axis on the anterior surface, revealed moderate fragmentation and segmentation of the muscle fibers and considerable dilatation and congestion of the capillaries. The nuclei of the muscle fibers in this section were larger and slightly paler staining than were those in the sections taken from the septum. There was no evidence of nerve tissue in this particular section. A section taken through the right auricle just beneath and to the left of the inferior vena caval

orifice revealed three small sympathetic ganglions immediately beneath the endocardium. The cells in two of these ganglions were about six times the diameter of a red blood cell and they had a slightly basophilic cytoplasm with a round, mildly hyperchromatic nucleus. Two or three small dendritic processes extended from each cell body. In the third ganglion the cells were fainter, paler staining and appeared to have undergone some mild change. The vessels in this section were mildly congested. The heart muscle fibers were fairly well developed. There was no fibrosis seen in any section.

SUMMARY

A colored female infant, 4½ weeks of age, had an attack of rapid heart action lasting more than ten hours, during which time the ventricular rate was approximately 300 beats per minute. Similar attacks of shorter duration occurred during the first ten days that the child was under observation. During the intervals between attacks the heart rate varied from 130 to 180. On the fourth day following the onset of the rapid rate an electrocardiogram showed a ventricular rate of from 310 to 313 beats per minute (fig. 1). Following the cessation of the attacks the heart maintained a rate of from 130 to 180 for the remaining ten days of life. Three weeks after the onset of the initial attack the infant died of streptococcic meningitis. An autopsy showed a grossly normal heart. Microscopically there was no evidence of infection or fibrosis, the only changes being terminal ones.

COMMENT

Sixteen cases of excessively rapid heart rates have been collected from the literature. These, together with the additional case that is being reported, are summarized in table 1. Only cases showing a rate of 280 beats per minute or over were included in the series.

TABLE 2.—*Summary of Sex and Age Incidence*

	Sex			Age			
	Male	Female	Not Stated	Under 2 Years	2 to 10 Years	10 to 20 Years	Over 20 Years
Number of patients	11	5	1	11	1	2	3

Cases[5] in which the rate was described as "uncountable" or "too rapid to count," without an attempt to estimate the number of pulsations per minute, were omitted. Very rapid oscillations, as high as 1,000 per minute, have been recorded electrocardiographically in ventricular fibrillation.[6] Cases of ventricular fibrillation, however, were omitted because of the transitory nature of the arrhythmia and the absence of ventricular pulsations during an attack. Cases[7] of ventricular tachycardia in which the tachycardia was momentary and merely preliminary to, or terminating, an attack of ventricular fibrillation were also omitted. The criteria that were used to distinguish ventricular tachycardia from fibrillation were the persistence of heart sounds and pulse activity. Only one case of ventricular tachycardia with a rate approaching 300 was found to conform to these criteria.[8]

In this series of seventeen cases, the rapid heart rate occurred more frequently in males than in females in the ratio of eleven to five, the sex of one patient not being stated (table 2). Two patients, both infants, were colored. The series is preponderantly one of infancy, eleven of the seventeen patients being under 24 months of age. Werley's[1] patient, in whom the onset of tachycardia occurred during the fourth day of life, was the youngest of the group. In Clarke's[9] case an attack of tachycardia had its onset on the seventh day of life and persisted uninterruptedly for fifty-one hours. The longest duration of an attack was eight days, in an infant 2 months of age, reported by O'Flyn.[10] The attacks of rapid heart action in the adult group were of comparatively short duration, five hours in Bunn's[8] case and two hours in Blackford and Willius's[2] case. Mackenzie's[11] and Herapath's[12] patients had brief attacks of one-to-one response in auricular flutter, which usually presented a two-to-one block.

TABLE 3.—*Summary of Incidence of Associated Diseases*

	Associated Diseases					
Age Groups	Not Stated	None Present	Diagnosis Undetermined	Infectious Diseases	Heart Disease	Exophthalmic Goiter
Under 2 years	1	3	3	3	1	0
2 to 10 years	..	..	..	0	1	0
10 to 20 years	..	1	..	1	0	0
Over 20 years	..	..	..	1	0	2

The diseases that were associated with the rapid heart action in the infant group show considerable divergence from those of the adult group (table 3). Three infants presented no symptoms at the onset or during the course of their attacks except those that were clearly produced by the arrhythmia itself. Three infants had an associated disease which was not diagnosed. In three cases in the infant group there was an infectious disease present prior to or during the onset of the rapid rate, in Koplik's[13] case "grip," in de Bruin's[14] case "probable encephalitis," and in the case being reported streptococcic meningitis proved at autopsy. In two cases in the adult group, infectious diseases in the form of typhoid and influenza had occurred prior to the onset of auricular flutter with two-to-one and three-to-one block. In these two cases the paroxysms of one-to-one response were produced by exertion. No symptoms of an associated disease were present in the case reported by Langley.[15] The remaining two adults had exophthalmic goiter. One of these, reported by

TABLE 4.—*Summary of Incidence of Cardiac Arrhythmias*

	Types of Arrhythmias		
Age Groups	Paroxysmal Auricular Tachycardia	Auricular Flutter with 1 to 1 Response	Paroxysmal Ventricular Tachycardia
Under 2 years	9	2	0
2 to 10 years	1	0	0
10 to 20 years	1	1	0
Over 20 years	0	2	1

5. Schuster, Norah H., and Paterson, Donald: Specimen from a Case of Paroxysmal Tachycardia in an Infant, Aged 9 Weeks, Proc. Roy. Soc. Med. **17:** 11 (Nov. 23) 1923. Blue, W. R.: A Case of Paroxysmal Tachycardia in a Baby Two Months Old, Memphis M. J. **3:** 74-75 (March) 1926.

6. Kerr, W. G., and Bender, W. L.: Paroxysmal Ventricular Fibrillation with Cardiac Recovery in a Case of Auricular Fibrillation and Complete Heart Block While Under Quinidine Sulfate Therapy, Heart **9:** 269-279 (Dec.) 1921. Schwartz, S. P.: Transient Ventricular Fibrillation: A Study of the Electrocardiograms Obtained from a Patient with Auriculoventricular Dissociation and Recurrent Syncopal Attacks, Arch. Int. Med. **49:** 282-302 (Feb.) 1932.

7. Dock, William: Transitory Ventricular Fibrillation as a Cause of Syncope and Its Prevention by Quinidine Sulfate, with Case Report and Discussion of Diagnostic Criteria for Ventricular Fibrillation, Am. Heart J. **4:** 709-714 (Aug.) 1929. Rubell, Irwin, and Strauss, Harry: Fatal Paroxysmal Ventricular Tachycardia in a Young Child, Am. J. Dis. Child. **51:** 633-652 (March) 1936.

8. Bunn, W. H.: Ventricular Tachycardia, Rate of 300, Following Thyroidectomy, Am. Heart J. **8:** 714-718 (June) 1933.

9. Clarke, T. W.: Paroxysmal Tachycardia in Infancy: Report of a Case, Arch. Pediat. **52:** 666-675 (Oct.) 1935.

10. O'Flyn, J. L.: Paroxysmal Tachycardia in an Infant, Brit. M. J. **1:** 507-508 (March 14) 1925.

11. Mackenzie, James: Digitalis, Heart **2:** 273-386 (Aug.) 1911; Diseases of the Heart, ed. 3, London, Oxford University Press, 1918, pp. 428-430.

12. Herapath, C. E. K.: Auricular Flutter, Brit. M. J. **1:** 213-214 (Feb. 11) 1928.

13. Koplik, Henry: Paroxysmal Tachycardia in Children, Am. J. M. Sc. **154:** 834-851 (Dec.) 1917.

14. de Bruin, M.: Paroxysmale Tachycardia bei einem Saugling, Nederl. tijdschr. v. geneesk. **74:** 3415-3418 (July 15) 1930.

15. Langley, R. W.: Paroxysmal Tachycardia with an Unusually Rapid Heart Rate in a Boy of Fourteen Years, Am. Heart J. **3:** 368-371 (Feb.) 1928.

Blackford and Willius,[2] had established auricular flutter with two-to-one and three-to-one block and occasional paroxysms of one-to-one response, "usually following exertion." Bunn's[8] patient had a single attack of paroxysmal ventricular tachycardia, which occurred thirty-six hours following thyroidectomy.

From a study of this series of cases it would appear that an excessively rapid ventricular rate is not an indication of heart disease. In only one instance was undoubted heart disease associated with the arrhythmia. Sachs[16] reported the case of a 3 year old child, hospitalized for cardiac decompensation, who had a heart rate of 240 beats per minute when first examined. On the following day an electrocardiogram showed a rate of 280 per minute. A later tracing showed a three-to-one block and configuration suggesting auricular flutter. There were two subsequent attacks of rapid heart action two months and five months later with rates of 200 and 250 respectively. The child died a year after the initial attacks of tachycardia and seven months following the last attack. A postmortem examination showed diffuse subacute myocarditis with dilatation and hypertrophy of the heart. Russell and Ellison[17] thought that congenital heart disease was present in their case of a child 15 months of age who had a rate of approximately 300 beats per minute over a period of five days. They stated that for the first four months of life the child had been entirely normal, with no clubbing of the fingers and no cyanosis present. The cyanosis that was observed during the first three days of the tachycardia did not persist, although the child's lips became blue when she cried. The authors cite the following observations obtained after the resumption of a normal heart rate: "The apex beat was in the fourth left intercostal space, a quarter of an inch internal to the nipple line. The right limit of cardiac dulness was at the right sternal edge. On auscultation the heart sounds were normal and a loud systolic murmur could be heard all over the left sternal edge over the fourth intercostal cartilage. There was no thrill." The nature of the congenital lesion was not determined. In Werley's[1] case a widely patent foramen ovale was found at autopsy, but at the onset of the rapid rate there was also present an undiagnosed condition. The infant when examined on the second day of tachycardia, the fifth day of life, had a temperature of 102 F., dark-colored vomitus and stools, and numerous vesicles about the umbilicus, some containing reddish fluid. On the following day, the day of death, the heart rate varied from 150 to 160 beats per minute. At autopsy the heart was found to be normal except for the widely patent foramen ovale and congestion of the cardiac vessels.

Fig. 1.—Electrocardiogram taken Feb. 19, 1934, the fifth day following the onset of the arrythmia. The auriculoventricular rate is 310 beats per minute in leads 1 and 2 and 313 beats per minute in lead 3.

The prolonged attacks of rapid heart action in the infant group were accompanied by surprisingly few evidences of cardiac embarrassment. O'Flyn's[10] patient, whose rapid rate was maintained for eight days, retained her natural rosy color, nursed well and slept normally during the greater part of the attack. On the fourth day there was cyanosis at times, the heart and liver were enlarged and the urine was scanty. On the fifth day bronchitis developed with hepatic pulsations and Cheyne-Stokes breathing, but this complication did not prevent the complete recovery of the patient. In the case reported by Russell and Ellison[17] there was a definite loss of consciousness for a few seconds just prior to the onset of a heart rate of 300 beats per minute. During the first two days of the tachycardia, which continued uninterruptedly for five days, cyanosis and restlessness were pronounced. These symptoms gradually abated, and during the last two days of the attack the child appeared well and happy. Clarke's[9] patient, during a fifty-one hour attack of tachycardia, had good color when quiet, but at times, when crying or trying to nurse, the infant became very cyanotic and dyspneic and appeared to be extremely ill. At other times it was fairly comfortable and was able to nurse. Among the other infants there were varying degrees of cyanosis and dyspnea noted, as well as evidences of passive congestion. Duken's[3] patient, an infant 8 weeks of age, went into an attack of syncope following the administration of 4 mg. of morphine. The heart rate dropped from 300 to 120 beats per minute, became irregular, and then both the heart and respiration stopped. Intracardiac injections of epinephrine and cardiac massage were given and the heart resumed pulsations at a rate of from 100 to 120 per minute. In all the cases the symptoms of cardiac embarrassment cleared up quickly on the cessation of the arrhythmia. In the adult group the attacks of rapid heart action, which of course were much briefer than those in the infant group, were well tolerated except in Bunn's[8] case. His patient, an apprehensive individual, suffered a collapse at the onset of the rapid rate. The skin was cold and clammy, the pulse weak and the systolic blood pressure dropped from a normal of 138 to 60 mm. of mercury and the diastolic pressure from 70 to 40 mm. About five hours after the onset of the attack, pulmonary edema was present and the patient's condition seemed critical. On the cessation of the arrhythmia his condition improved

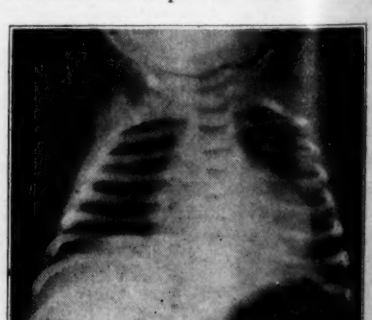

Fig. 2.—Teleroentgenogram taken February 23, the eighth day of recurring attacks of rapid heart action. The heart shows slight enlargement: M. R. 2.6 cm., M. L. 3.6 cm., thoracic diameter 10.8 cm.

16. Sachs, H.: Zur paroxysmalen Tachycardie, Zentralbl. f. Herzkrankh. **18**: 65-74 (Feb.) 1926.

17. Russell, H. B., and Ellison, J. B.: A Case of Prolonged Tachycardia, Associated with Congenital Heart Disease, in a Child Fifteen Months Old, Lancet **2**: 546-547 (Sept. 18) 1927.

rapidly. Blackford and Willius's [2] patient was not sufficiently inconvenienced during the first hour of her attack to comment about it. She walked several blocks and climbed one flight of stairs during the two hour duration of the rapid rate.

There were three deaths in the series. In Werley's [1] case the tachycardia may have been a contributing cause of death. In the other two cases it is unlikely that the rapid rate was a determining factor in the outcome, as one patient died of heart disease seven months, and the other of streptococcic meningitis ten days, after the final attack of tachycardia. In one case the outcome was not stated. In the remaining thirteen cases (76 per cent) there was a resumption of the normal rate. The prognosis, therefore, in cases of excessively rapid heart rate appears to be good unless an associated condition is present that cannot be controlled. It should be borne in mind that long continued auricular tachycardia of rapid rates or frequent paroxyms of one-to-one response in established auricular flutter constitute a grave burden when the circulation is already inefficient because of a diseased heart muscle. This series of cases, however, shows that excessively rapid rates, such as those under discussion, occur in patients with relatively sound heart muscles. The observations in this series also bears out the statement frequently made that there is greater responsiveness of the conduction system and greater elasticity of the musculature in the hearts of very young children. They therefore tolerate prolonged attacks of rapid heart action and make a quick and apparently a complete, recovery on the resumption of a normal rate.

In eleven cases collected from the literature, rates of approximately 300 beats per minute were diagnosed as paroxysmal tachycardia of auricular origin (table 4). This greatly exceeds the upper limit of 220 beats per minute which Lewis [18] set for paroxysmal auricular tachycardia. It will be noted, however, that with two exceptions the arrhythmias diagnosed as auricular tachycardia occurred in very young children. In only four of these cases was an electrocardiogram published showing the arrhythmia. Colgate and McCulloch,[19] who published a tracing showing a rate of 291 beats per minute in a case of an infant 3½ weeks of age, stated: "Whether the case reported here should be diagnosed as auricular flutter or paroxysmal tachycardia is uncertain. The criterion by which these two conditions may be differentiated is by no means clear." Farr and Wegman [20] also were uncertain as to the interpretation of the tracing in their case of an infant 5½ weeks of age who had a rate of 300. "The electrocardiographic tracings," they contended, "do not permit of an accurate distinction between auricular tachycardia and auricular flutter with one-to-one rhythm. . . . In an adult the rate would make a diagnosis of flutter almost certain, but when one considers the rapidity with which a normal infant's heart may beat when the child is crying, one must admit that a higher limit ought to be postulated for paroxysmal tachycardia in infants." Wilson,[21] in a summary of cases of rapid heart rates in children, recognized the difficulty of distinguishing between the two arrhythmias. "Both auricular flutter and paroxysmal tachycardia," he said, "have been observed in children, but there is some confusion as to the separation of the two conditions at this period of life. The reason for this is that in children the auricular rate may often exceed 200 per minute without any block being present and moreover the attacks of very rapid auricular action so far observed in children have all been of comparatively short duration." He did not attempt to distinguish between the two conditions but referred to both as "auricular tachysystole." Lewis [22] published an electrocardiogram showing a rate of 290 beats per minute in a child 3 months of age and interpreted the arrhythmia as auricular flutter with a one-to-one rhythm. Among the cases collected from the literature in this series, all other instances of auricular flutter occurred in adults. In these the diagnosis was indisputable, as in each the established rhythm prior and subsequent to the paroxysms of one-to-one rhythm was auricular flutter with block. One case, occurring in an adult, was diagnosed as ventricular tachycardia. Bunn,[8] who reported the case, expressed doubt as to the correctness of his interpretation and discussed the possibility of its being auricular flutter with one-to-one rhythm.

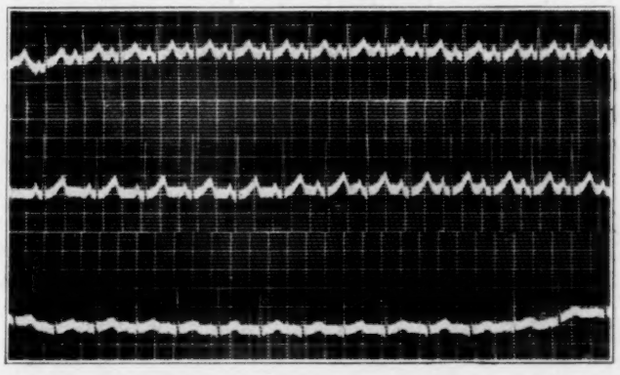

Fig. 3.—Electrocardiogram taken March 3, showing an auriculoventricular rate of 130 beats per minute. Aside from the tachycardia, the tracing is normal.

Interpretation of Electrocardiogram.—The arrhythmia presented in the electrocardiogram with a rate of 310 to 313 beats per minute in the case being reported is interpreted as paroxysmal auricular flutter with one-to-one response and intraventricular block due to fatigue of the heart muscle (fig. 1). Because of the extreme rapidity of the rate, the bizarre character of ventricular complexes and the absence of the onset or offset of the paroxysms it is impossible to be dogmatic about the interpretation of the tracing. Not only is paroxysmal auricular tachycardia a possibility but, owing to the aberration of the QRS complexes, paroxysmal ventricular tachycardia must also be considered. A study of the cases of excessively rapid heart rates collected from the literature revealed the difficulties of interpreting such arrhythmias. In an attempt to determine whether any unanimity of opinion existed concerning their interpretation, copies of the electrocardiogram were submitted to a number of the leading cardiologists in America and Europe. Eleven cardiologists in America and eight abroad gave unqualified agreement to the diagnosis of paroxysmal auricular flutter with one-to-one block and intraventricular block due to fatigue of the heart muscle. Six additional American cardiologists thought that the interpretation was probably correct but that some other diagnosis could not be ruled out with

18. Lewis, Thomas: Clinical Disorders of the Heart Beat, London, Shaw & Sons, Ltd., 1925, pp. 57, 79.

19. Colgate, C. E., and McCulloch, Hugh: Paroxysmal Tachycardia in Infancy: Report of Two Cases with Comments on the Differential Diagnosis, Am. Heart J. **2**: 160-165 (Dec.) 1926.

20. Farr, L. E., and Wegman, M. E.: Extreme Tachycardia in the New-Born, with Report of a Case, Am. J. M. Sc. **190**: 22-28 (July) 1935.

21. Wilson, F. N.: Résumé on the Circulation, Am. J. Dis. Child. **10**: 376-390 (Nov.) 1915.

22. Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, London, Shaw & Sons, Ltd., 1925, pp. 257, 263.

certainty. Six American cardiologists interpreted the arrhythmia as paroxysmal ventricular tachycardia and one as paroxysmal auricular tachycardia. To several the marked regularity of the tracing spoke against its being ventricular tachycardia; to others the distortion of the ventricular complexes in leads 1 and 2 suggested a tachycardia of ventricular origin. Some thought that the only mechanism that would cause so rapid a rate was auricular flutter; others that rates as high as 300 were possible in paroxysmal tachycardia in children. One cardiologist had observed similar records in experimental animals when the evidence pointed to its being paroxysmal tachycardia.

SUMMARY

1. An infant, 4½ weeks of age, at the onset of a fatal attack of streptococcic meningitis showed a heart rate of from 310 to 313 beats per minute, recorded electrocardiographically. Autopsy revealed a grossly normal heart. Microscopically there was no evidence of infection or fibrosis of the heart muscle.

2. Sixteen cases having heart rates of approximately 300 beats per minute were collected from the literature.

3. As the interpretations of very rapid rates in young children in this series presented considerable uncertainty, the electrocardiograms showing a rate of 310 to 313 beats per minute in the case being reported was submitted to a number of eminent cardiologists for their opinion.

1801 Eye Street N.W.

CARCINOMA OF STOMACH IN A CURED CASE OF ADDISON-BIERMER'S (PERNICIOUS) ANEMIA

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NEW YORK

Whereas a great number of cases have been reported of Addison-Biermer's (pernicious) anemia associated with cancer, in the preliver era as well as since the institution of liver treatment for this condition, the literature contains very few reports of authentic cases in which all the symptoms of anemia had disappeared, following which cancer of the stomach developed. In view of this rarity we are reporting a case in which a male patient developed Addison-Biermer's anemia in 1927, was completely cured by liver treatment, and recently developed cancer of the stomach.

REPORT OF CASE

J. K., a man, aged 63, married but without children, seen in March 1924, complained of indefinite gastric symptoms. A thorough gastro-intestinal roentgen examination at the time was negative. Examination of the stomach contents showed an absence of free acidity, a low total acidity and no lactic acid. The gastric symptoms were attributed to an unexplained achlorhydria. There was no clinical evidence of anemia.

In the spring of 1928 the patient returned. He had felt well until the fall of 1927, when he began to experience marked weakness, inability to work, mental depression and severe epigastric pain.

In the four years that had elapsed his hair had become almost white and his skin waxen, with a hemic pallor.

Physical examination at this time revealed a short systolic murmur over the apex. The blood pressure was 120 systolic, 80 diastolic.

The spleen was barely palpable. The panniculus adiposis was well retained. The abdominal and knee reflexes were absent. The weight was 107 pounds (48.5 Kg.).

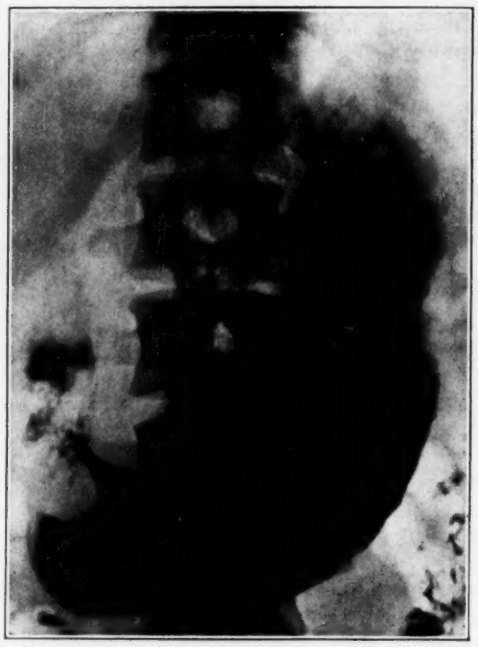

Fig. 1.—Defect in pylorus in a four-hour gastric roentgen examination. The rugae are not visible with this mixture.

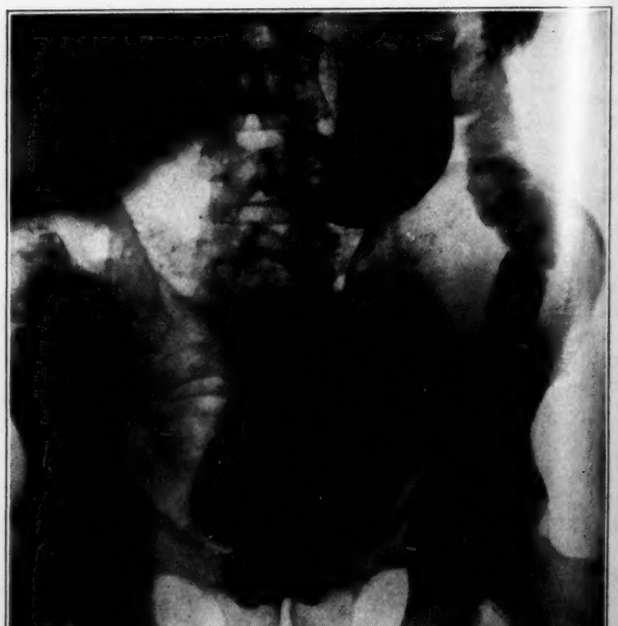

Fig. 2.—Marked residue (forty-eight hours) in a stenosing carcinoma of the pylorus. Barium in large intestine after evacuation of contrast enema.

Examination of the blood revealed hemoglobin 50 per cent, red blood cells 2,610,000, color index 0.9. The differential blood smear showed polymorphonuclears 60 per cent, lymphocytes 26 per cent, myelocytes 3 per cent, monocytes 10 per cent and transitionals 1 per cent.

The gastric contents showed an absence of free hydrochloric acid, total 15. The lactic acid was negative. The blood serum was dark yellow, bilirubin 0.9, icterus index 6. The blood picture was that of Addison-Biermer's anemia, except for the fact that the color index was below 1. The blood Wassermann reaction was negative. Roentgen examination of the gastro-intestinal tract was negative.

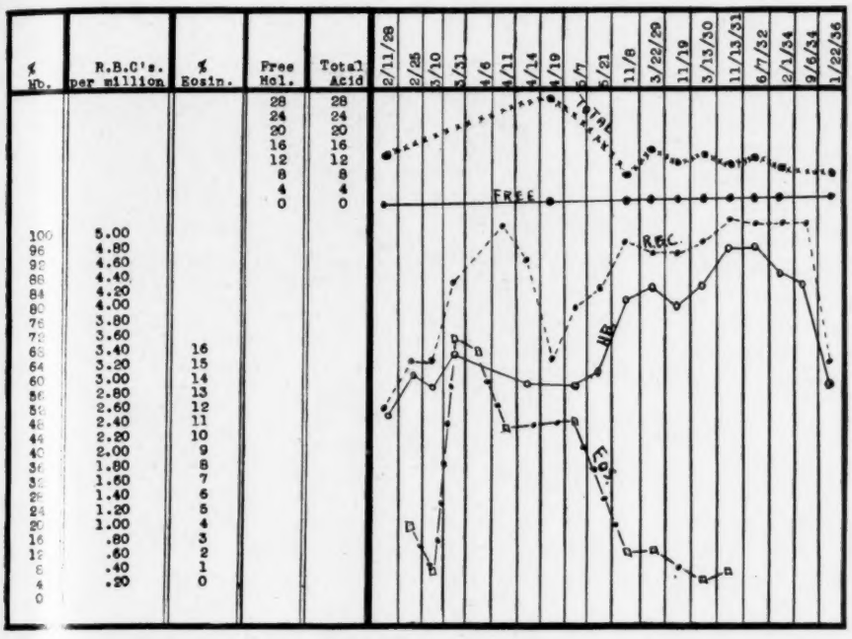

Fig. 3.—Constancy of absence of free acidity and response of blood to liver therapy.

The condition was diagnosed as Addison-Biermer's anemia and the patient was placed on the regular regimen for such cases of diluted hydrochloric acid and liver extract. The sequence of events in this case as to the progress may be noted from the chart, showing the various blood counts up to the period of 1930 (fig. 3). The case was reported by us in 1931 because of the peculiar reaction encountered.[1]

While under liver extract therapy for about a month, the patient reported to us in the office because of symptoms of renal colic and showed a peculiar skin reaction. It was considered that the passage of excessive uric acid crystals explained the renal colic. An urticaria and erythema nodosum with marked itching and pain in the right knee joint were present. Analysis showed an increased uric acid of 4.2 mg. per hundred cubic centimeters of blood (fig. 3). The blood showed a large number of disintegrated white blood cells and eosinophils. The patient was under continuous observation, improving in both symptomatology and weight. The blood returned to a normal state (fig. 3).

In January 1936 the patient complained of loss of weight, appetite and weakness, with inability to enjoy his meals for the past six months. He had occasional attacks of vomiting and regurgitation of food, with a sensation of sourness in the mouth. On several occasions hematemesis occurred.

The physical examination revealed that the patient had lost some weight. His complexion was paler than before and there was pronounced weakness. Palpation showed slight resistance in the epigastrium with a suggestive mass. The blood pressure was 140 systolic and 80 diastolic. Examination of the blood showed hemoglobin 60 per cent, red blood cells 3,200,000 with a color index of 0.93, and white blood cells 7,200. The differential blood smear showed segmented cells 60 per cent, small lymphocytes, 30 per cent, large lymphocytes 4 per cent, eosinophils 2 per cent and mononuclears 4 per cent. There was slight anisocytosis with no predominance of macrocytes. The gastric contents showed free acidity 0, total 10, with occult blood in both stool and stomach contents. It was impossible to perform a fractional test meal because of the marked retention of food.

X-ray examination of the gastro-intestinal tract showed a definite deformity of the pylorus (fig. 1) and marked gastric catarrh, with a forty-eight hour residue (fig. 2). In view of a diagnosis of stenosing carcinoma of the pylorus, surgical intervention was deemed urgent.

Accordingly the patient was operated on February 21 by Dr. A. A. Berg at the Mount Sinai Hospital, a gastric resection being performed for carcinoma of the pylorus. There was a defect in the mucosa, with thickened mucosal folds, as seen in the resected stomach (fig. 4). The pathologic report by Dr. Paul Klemperer was ulcerated infiltrating adenocarcinoma of the stomach, with involvement of the omentum; no involvement of the lymph nodes; hyperplastic catarrh of the stomach (fig. 5).

The patient was examined Nov. 2, 1936, nine months following the operation. He had gained 15 pounds (7 Kg.) and had a very good appetite. The rest of the physical examination was negative.

The hematologic examination showed hemoglobin 89 per cent, red blood cells 4,400,000 and color index of 1.01. The differential count showed segmented cells 72 per cent, small lymphocytes 22 per cent, eosinophils 2 per cent, mononuclears 3 per cent and large lymphocytes 1 per cent. The individual cells were practically normal with no variation in size, shape or stain.

The roentgenogram (fig. 6) showed a postoperative stomach with a patent lumen and rapid emptying time. There was no evidence of any metastasis.

COMMENT

That cancer of the stomach, or of any part of the gastro-intestinal tract, especially of the cecum, may hematologically simulate Addison-Biermer's (pernicious) anemia is very well known, and it is also true

Fig. 4.—Resected stomach showing thickened mucosa with definite malignant condition in the pylorus. (Obtained through the courtesy of Drs. A. A. Berg and Paul Klemperer.)

that Addison-Biermer's anemia may be associated with cancer, so that it is impossible to determine which was primary. There have been encountered, however, only a few cases in which the hematologic picture and

1. Held, I. W., and Goldbloom, A. A.: Addison-Biermer's (Pernicious) Anemia: Report of a Case Showing Allergic-like Phenomena to Liver Extract, J. A. M. A. **96**: 1361-1363 (April 25) 1931.

symptoms of Addison-Biermer's anemia entirely disappeared as a result of treatment, after which carcinoma of the stomach developed. Strandell [2] reported in 1931 two cases out of 117 cases, or 1.7 per cent, of cured pernicious anemia. Since then Wilkinson [3] has reported 370 cases with or without symptoms of collateral involvement of the spinal cord, in two of which (0.054 per cent) gastric cancer developed after successful treatment of the pernicious anemia, five years prior to the onset of the carcinoma. Conner and Birkeland,[4] in 658 patients with pernicious anemia at the Mayo Clinic, found that in four, or 0.6 per cent, carcinoma developed when they had been on specific therapy for a period of seven or eight years and had recovered from this condition. Murphy [5] in his own series states: "In analyzing 440 cases of pernicious anemia only four instances of associated carcinoma of the stomach were found (0.9 per cent). Three of these were adenocarcinoma and the other was carcinoma of the pyloric region."

Although liver treatment is effective in Addison-Biermer's anemia so far as returning the hematologic picture to normal is concerned and may also bring about complete disappearance of the subjective symptoms, the existing anacidity, which is a constant feature of the disease, may continue, as may neurologic manifestations, if these were present. Therefore there are certain authors who are of the opinion that the anacid gastritis is a predisposing factor for the development of gastric cancer. Judging, however, from the very few occurrences of cancer in cured cases of Addison-Biermer's anemia, it is scarcely conceivable that the cancer is at all the result of the persistent anacidity. It is, in all probability, a mere coincidence.

However, it is important, when an individual who has recovered from Addison-Biermer's anemia develops

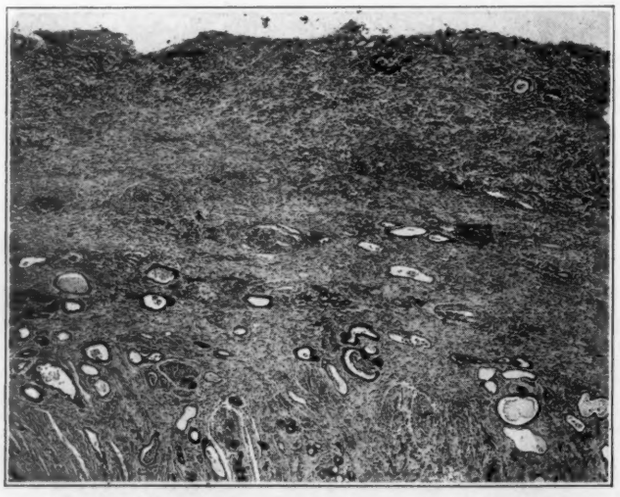

Fig. 5.—Microscopic section of the resected stomach showing ulcerated infiltrating adenocarcinoma of the gastric mucosa, with a loss of the normal contour. (Courtesy of Drs. A. A. Berg and Paul Klemperer.)

anew the hematologic picture of the disease or secondary anemia, as in our case, with recurrent symptoms, not to conclude arbitrarily that the condition is a recurrence of Addison-Biermer's anemia. Before such a diagnosis is reached a thorough examination of the gastro-intestinal tract should be made to rule out gastric carcinoma as an independent cause of the anemia. It is also important not to regard the degree of anemia,

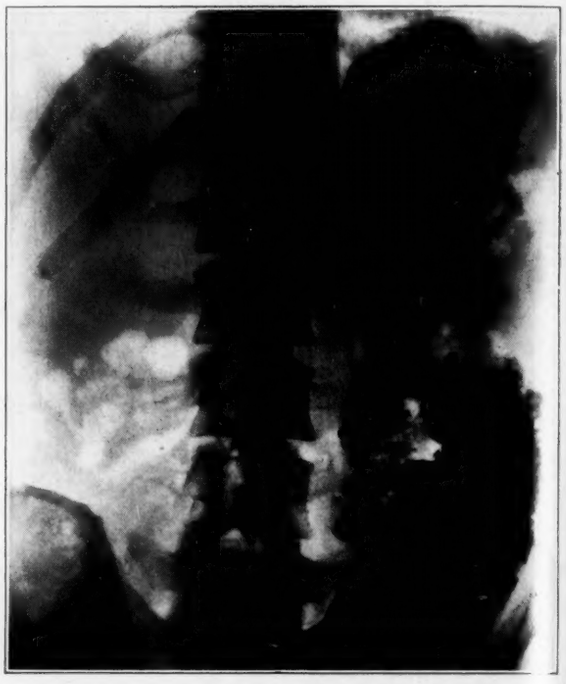

Fig. 6.—Stomach after operation showing patent lumen and rapid emptying with hyperperistalsis and hypermotility.

when cancer is the cause, as a contraindication to surgery, for in many cases successful removal is possible and life may be indefinitely prolonged.

SUMMARY

1. In the event of recurrence of symptoms and hematologic signs of Addison-Biermer's anemia or secondary anemia after the cure of Addison-Biermer's anemia, differential diagnosis between actual recurrence and an independent cause of the anemia, such as gastric carcinoma, must be made.

2. Successful removal of the lesion may be possible, in spite of the anemia.

2 East Ninety-Fifth Street — 65 East Ninety-Sixth Street.

2. Strandell, Burger: Pernicious Anemia: A Study of 117 Cases, Acta med. Scandinav., 1931, supp. 40, pp. 89-97.

3. Wilkinson, J. F.: Pernicious Anemia and Malignant Diseases, Acta med. Scandinav. **80**: 466-479, 1933.

4. Conner, H. M., and Birkeland, I. W.: The Coexistence of Pernicious Anemia and Lesions of the Gastro-Intestinal Tract; Carcinoma of the Stomach; Consideration of Twenty Cases: Eleven Reported, Ann. Int. Med. **7**: 89-104 (July) 1933.

5. Murphy, W. P.: Personal communication to the authors, April 22, 1936.

Countless People Contribute.—Every hospital recognizes more or less clearly its set obligations; what helps or hinders most of their fulfilment are the crystallized traditions which give an institution its particular individuality. In the development of this quality countless people, however unconsciously, have contributed—those whose charity has given comfort and peace of mind, as well as those whose professional skill has brought physical well being to the maimed and sick; those who have brought the greatest sympathy and understanding to the problems of the young people here to learn; those who may never have come in special contact either with patients or with students but, freed from the killing routine of the clinic, have applied themselves to the forwarding of knowledge; those who have managed the business affairs of the hospital and its relations to the outside world; those, too, who have made the beds, kept the books, answered the phone, cooked the food, done the wash, stoked the fires, scrubbed the floors and killed the rat—in the hospital Jack built.—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

GRANULOMA VENEREUM OF CERVIX UTERI (GRANULOMA INGUINALE) SIMULATING CARCINOMA

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AND
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A clinicopathologic study of granuloma inguinale has enabled us to describe its specific histologic picture.[1] This characteristic pathologic appearance was determined by the study of sections of tissue taken from lesions in which the Donovan bodies had previously been demonstrated in films.

We have recently observed two patients with granulomatous growths of the cervix that exhibited the specific histologic picture of granuloma inguinale. It is interesting to note that in these two cases epithelioma was suspected clinically. This suspicion was so strong in one instance that a radium pack was applied at the time of biopsy. From these observations we are enabled to report a heretofore disregarded entity. However, Gardner [2] has briefly suggested that granuloma of the cervix may possibly be related to granuloma inguinale. Because lesions of this specific disease, commonly called granuloma inguinale, have now been observed at sites other than the inguinal region, we prefer the term granuloma venereum. We are therefore placing on record and describing a lesion which, to differentiate from cancer of the cervix, challenges the diagnostic acumen of the clinician. Histologic differentiation offers little difficulty. A knowledge of the microscopic picture permits the pathologist to render a specific diagnosis in these cases, which hitherto have been dismissed with the sententious but noncommital description "nonspecific granulation tissue."

REPORT OF CASES

CASE 1.—A Negress, aged 33, a tertipara, was referred to the cancer clinic of the University Hospital because of a fungating growth involving the whole cervix. She gave a history of intermenstrual bleeding for three months and daily spotting for the past three weeks. Dr. G. T. Bernard, chief of the cancer clinic, examined the patient and described the condition as follows: "The cervix presents a large papillary growth, round in contour without surrounding infiltration. The finger can readily encircle the cervix. The surface of the growth is granular and red in appearance and does not bleed when gently sponged. The central portion is ulcerated. The fundus of the uterus is freely movable, but the lower uterine segment appears to be slightly fixed." Biopsy was taken and 3,000 mg. hours of radium was given. The granulomatous lesion disappeared within several days. When last examined, one month after treatment, a few minute residual ulcers and a diffuse pin point nodularity were present. The Wassermann reaction on the blood was four plus. The Frei test was positive. She also reacted positively to both the chancroidal bacillary and pus antigen tests.

The pathologic report of the biopsy was: Granuloma inguinale of the cervix uteri. The "pathognomonic cells" are very numerous throughout the sections. There is no evidence of malignancy (fig. 1).

CASE 2.—A Negress, aged 18, five months pregnant, was found on examination at the university clinic to have a clean, raised, circumscribed tuft of reddish granulomatous tissue measuring 3 by 2.5 by 1 cm., situated at the left border of the vulva and fourchette. The cervix was freely movable and exhibited a soft velvety red lesion covering the whole anterior lip and the right half of the posterior lip. There was no adnexal induration or involvement of the vagina. Numerous Donovan bodies were demonstrated in films from both the cervical and the vulvar lesions. Only a few other organisms were found. Biopsies were taken from the cervix and vulva. The Wassermann reaction on the blood and the Frei test were negative. The intradermal chancroidal bacillary and pus antigen tests were positive. She is responding to fuadin therapy.

The pathologic report on biopsies was: Granuloma inguinale of the cervix and vulva. Sections from both lesions reveal the "pathognomonic cells" in abundance (fig. 2).

COMMENT

The histologic picture of sections from these two cases conforms to our previous description, a summary of which is here included: [1]

The essential features are the massiveness of the cellular reaction in which the luxuriant granulation tissue is surcharged with plasma cells; the relative paucity of lymphocytes; the diffuse sprinkling of polymorphonuclear leukocytes with focal collections in the superficies . . . ; the pathognomonic large mononuclear cells scattered in various numbers throughout the granulation tissue. This pathognomonic cell is specific for granuloma inguinale. The relatively large size of the cell, which varies from 25 to 90 microns, and the presence of many intracytoplasmic cysts filled with deeply stained bodies are its cardinal features. These bodies are round or rodlike, are grouped peripherally within the cysts and have an affinity for hematoxylin.

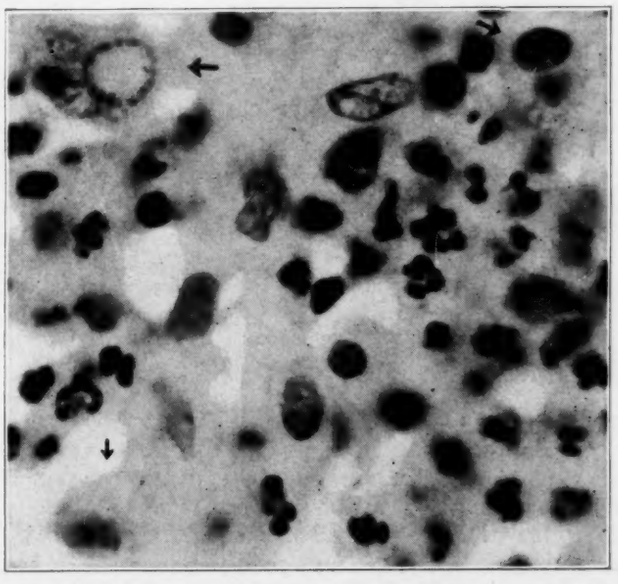

Fig. 1 (case 1).—Section from lesion of cervix. Note the characteristic cell of granuloma inguinale and the arrangement of the bodies within the intracytoplasmic cysts (upper left). Two other cells, not in focus, are indicated by arrows. Hematoxylin and eosin. Slightly reduced from a photomicrograph with a magnification of 1,440 diameters.

In addition to this description we have a further contribution to make. We have observed in sections that the so-called Donovan bodies have an affinity for silver salts. The use of the silver impregnation method of Dieterle [3] facilitates the demonstration of the specific cell laden with these bodies. The cell outline, nucleus and cyst walls stain pale yellow, while the Donovan bodies appear as dark brown or black rectangular or elongated ovoid forms with intense bipolar staining. These bodies, because of their contour and polar characteristics, resemble a safety-pin (fig. 2).

From the Department of Pathology, University of Georgia School of Medicine.

1. Pund, E. R., and Greenblatt, R. B.: Specific Histopathology of Granuloma Inguinale, Arch. Path. **23**: 224 (Feb.) 1937.

2. Gardner, G. H.: Gynecology, by Howard A. Kelly and collaborators, New York, D. Appleton & Co., 1928.

3. Dieterle, R. R.: Method for Demonstration of Spirochaeta Pallida in Single Microscopic Sections, Arch. Neurol. & Psychiat. **18**: 23 (July) 1927.

DIFFERENTIAL DIAGNOSIS AND CLINICAL DESCRIPTION

Granuloma venereum of the cervix is characterized by a moderately clean tuft of reddish meaty tissue, abruptly raised above the surface and with well defined borders. The lesion has a peculiar resilience, is velvety soft to palpation and does not bleed easily on touch.

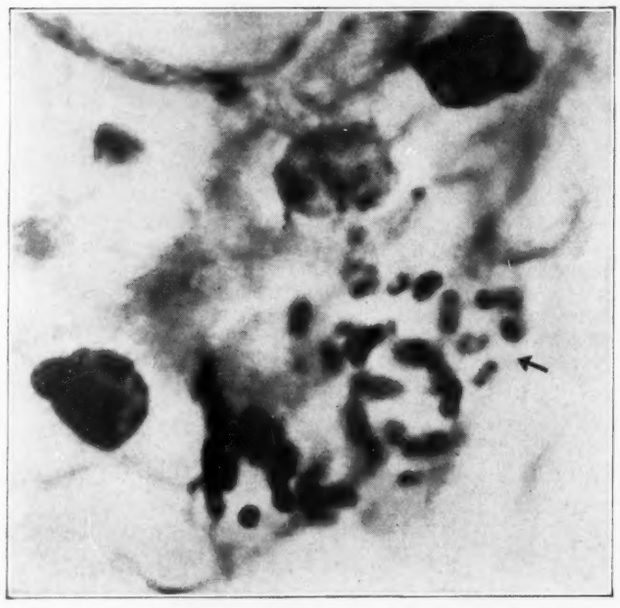

Fig. 2 (case 2).—A pathognomonic cell in a section from the cervix stained by Dieterle's silver technic. Note the characteristic safety-pin appearance of some of the intracystic bodies. Slightly reduced from a photomicrograph with a magnification of 3,500 diameters.

However, the growth may become markedly exuberant, fungating and ulcerative. The cervix alone may be involved, as in case 1, or the disease may be manifest elsewhere, as in case 2. Nonetheless the lesion of the cervix presents itself as an entity that must necessarily be differentiated from both the ulcerative and the vegetative type of carcinoma of the cervix. Malignant growths of the cervix have a friable hardness which can frequently be broken up with the finger. The various manifestations of cervical endometritis, such as polypoid hyperplasia and eversion, should be borne in mind. Cervical endocervicitis, whether due to gonorrhea, nonspecific infection or erosion, may sometimes offer difficulties in the differential diagnosis. A primary chancre, tertiary syphilis or a chancroidal lesion do not uncommonly involve the cervix. Tuberculosis of the cervix is rather rare. In the final analysis the diagnosis of these conditions must be determined by histopathologic study of biopsies.

SUMMARY AND CONCLUSIONS

1. A heretofore unrecognized entity, granuloma venereum of the cervix (granuloma inguinale), clinically simulates carcinoma of the cervix.

2. Since the involvement by the Donovan body occurs elsewhere than in the groin and on the external genitalia, the name of granuloma venereum is preferable.

3. It is characterized clinically by a tuft of reddish meaty tissue, raised above the surface, clean in appearance, velvety soft and resilient to palpation, and it does not bleed readily to touch.

4. Histopathologically, the essential features are the exuberant granulation tissue reaction in which the pathognomonic cell is found. This cell is a large mononuclear cell with intracytoplasmic spaces in which are dispersed the so-called Donovan bodies.

5. The affinity of the intracystic bodies for silver salts facilitates the recognition of the characteristic cell. With silver these bodies are stained black to brown and have a safety-pin appearance because of their elongated ovoid outline and intense bipolar staining reaction.

HYPERINSULINISM ASSOCIATED WITH CALCIFIED TUMOR OF THE PANCREAS

WITH SURGICAL CURE

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AND
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Soon after the discovery of insulin in 1923, Banting and his associates [1] noted the manifestations of hypoglycemia when the blood sugar fell below 0.07 per cent under the influence of insulin. They described the typical symptoms, which are familiar today to all who have used insulin, and observed that the condition was relieved by administration of carbohydrate and avoidance of excessive doses of insulin. The condition termed "spontaneous hyperinsulinism" was first suggested by Seale Harris [2] in 1923, and he reported five cases in 1924. In 1926 Warren [3] reported fifteen cases of islet cell tumors from the literature and added four more. The significance of these tumors was not proved until 1927, when Wilder and his associates [4] demonstrated a definite pathologic basis for hypoglycemia due to hyperinsulinism. At operation a pancreatic carcinoma with metastases to the liver, regional nodes and mesentery was found. Autopsy showed that these lesions were composed of cells closely resembling island cells. Extract of a liver nodule was said to act like insulin when injected into rabbits.

Fig. 1.—Pancreatic tumor (operative specimen).

The first successful operative removal, credited to Roscoe Graham, was reported by Howland and his associates [5] in 1929. Subsequently some thirty successful cases have appeared in the literature. Washington

1. Banting, F. G.; Campbell, W. R., and Fletcher, A. A.: Clinical Experience with Insulin in Diabetes, Brit. M. J. **1**: 8-12 (Jan. 6) 1923.

2. Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729 (Sept. 6) 1924.

3. Warren, Shields: Adenomas of Islands of Langerhans, Am. J. Path. **2**: 335-340 (July) 1926.

4. Wilder, R. M.; Allan, F. N.; Power, M. H., and Robertson, H. E.: Carcinoma of the Islands of the Pancreas: Hyperinsulinism and Hypoglycemia, J. A. M. A. **89**: 348-355 (July 30) 1927.

5. Howland, Goldwin; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism: Coma and Convulsions Due to Islet Cell Tumor of the Pancreas with Operation and Cure, J. A. M. A. **93**: 674-679 (Aug. 31) 1929.

University surgeons have contributed five cases.[6] Bast, Schmidt and Sevringhaus[7] reported the successful removal of a carcinoma of the islands of Langerhans for status epilepticus due to hyperinsulinism, and Whipple and Frantz[8] in a comprehensive review reported six cases of pancreatic adenomas successfully operated on at the Presbyterian Hospital in New York during 1934-1935. Space will not permit the enumeration of all the cases; suffice it to say that surgical treatment of this type of lesion has been very gratifying.

The symptoms, as originally described by Banting, Campbell and Fletcher,[1] consist of nervousness, tremor, hunger, anxiety, sweating, fatigue, emotional instability, incoordination of the finer movements, vasomotor phenomena such as pallor and flushing, confusion, difficulty of articulation, syncope, collapse and unconsciousness. Convulsions may be added to this list. Recently the gastro-intestinal manifestations of hyperinsulinism have been studied by Harris.[9] He points out the frequency with which it simulates peptic ulcer, irritable colon, cholecystitis, appendicitis, pancreatitis and especially the group of cases now classified as neuroses of the stomach, intestine and other abdominal viscera.

The fact that the symptoms are frequently so protean and indefinite has resulted in many of the cases being labeled idiopathic epilepsy, alcoholism, neurasthenia and the like before the hypoglycemia has been discovered. It must be true that many of these cases are never diagnosed, and to correct this Harris advocates routine fasting blood sugar estimations on all patients.

It is to be recalled that spontaneous hypoglycemia is merely a descriptive term and denotes a lowering of blood sugar below normal limits. This condition may be due to a variety of causes and is not to be confused with hyperinsulinism. Wauchope[10] has listed the causes of hypoglycemia:

1. Excess of insulin due to therapy, tumors, hyperplasia or functional hyperinsulinism.
2. Lack of opposing secretions which may result from disease of the suprarenal glands, tumors of the anterior or posterior lobe of the pituitary or myxedema.
3. Lack of glycogen resulting from destruction of reservoirs, disease of the liver, or wasting of muscles, abnormal secretion of sugar in starvation and intoxication from phosphorus or arsphenamine poisoning.
4. Interference with regulating centers may result from disease affecting the pons or overactivity of the vagus nerve.

Holman[11] has described three surgical conditions recorded in the literature as being responsible for hyperinsulinism resulting in hypoglycemia:

1. Metastatic tumors or carcinomata of the islets of Langerhans which contrary to usual carcinoma of secreting glands have retained their property of producing insulin.
2. A benign tumor or an adenoma of the islets comparable to an adenoma of the thyroid.
3. An overactivity of an otherwise normal appearing pancreas comparable, as pointed out by Wilder, to hyperthyroidism due to hyperplasia.

All three of these conditions have been subjected to surgical intervention with amelioration and in some cases complete cure. The most frequent condition reported and the most remarkable results have been in group 2. Surgical resection in group 3 has been disappointing.

Pancreatic lithiasis is a relatively rare condition. Nine cases had been reported at the Mayo Clinic[12] before 1934. Seeger[13] was able to collect 100 cases from the literature in 1924. In most cases the stones are eccentric and occupy the cortex or an accessory pancreatic lobe. Usually they produce no obstruction and no symptoms. In a case reported by Rienhoff and Lewis[14] a pancreatic calculus which had caused an acute pancreatitis was found at operation to be impacted in the pancreatic duct. There is no mention of hypoglycemia. In case 5 of Whipple and Frantz's series there were two tumors in the body of the pancreas. A third of one of these was calcified and both tumors showed extensive degeneration and fibrosis.

The frequency with which degeneration occurs in islet cell tumors has been noted as well as the apparent lack of correlation existing between the size and microscopic appearance of the tumor and the severity of the hypoglycemia.[15]

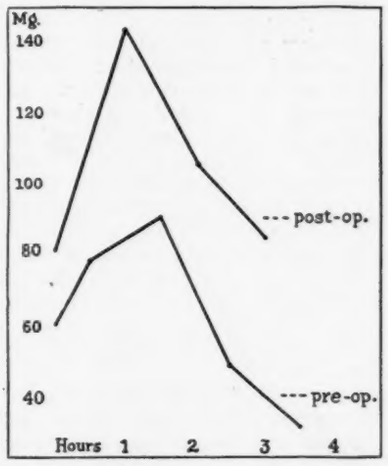

Fig. 2.—Dextrose tolerance test (average figures).

In the present case, hyperinsulinism of a marked degree associated with a pancreatic calculus without gross adenomatous islet tissue is reported. The fact that clinical cure followed surgical removal seems to establish the etiologic relationship. It is possible, however, that tumor tissue of microscopic proportions was destroyed at operation. On the other hand, the mechanism of the production of hyperinsulinism on the basis of a seemingly inert foreign body in the head of the pancreas has not been adequately explained on a physiologic basis. This subject is to be investigated further.

REPORT OF CASE

History.—C. H., a white man, aged 48, admitted to the Pierce County Hospital Aug. 13, 1935, complained chiefly of "weakness." In 1923 the patient first noted a constant sensation of chilliness in spite of increased clothing, warm weather and increased activity. Several years later he began having rather severe headaches, which seemed to originate in the neck, radiating into the occipital and frontal areas, accompanied by marked general weakness. These headaches would often appear

6. Carr, A. D.; Parker, Robert; Grove, Edward; Fisher, A. O., and Larrimore, J. W.: Hyperinsulinism from Beta-Cell Adenoma of the Pancreas, J. A. M. A. **96**: 1363-1367 (April 25) 1931. Womack, N. A.; Gnagi, W. B., and Graham, E. A.: Adenoma of Islands of Langerhans with Hypoglycemia, ibid. **97**: 831 (Sept. 19) 1931. Graham, E. A., and Womack, N. A.: The Application of Surgery to the Hypoglycemic State Due to Islet Tumors of the Pancreas and Other Conditions, Surg., Gynec. & Obst. **56**: 728-742 (April) 1933. Smith, M. G., and Seibel, M. G.: Tumors of the Islands of Langerhans and Hypoglycemia, Am. J. Path. **7**: 723-739 (Nov.) 1931.

7. Bast, T. H.; Schmidt, E. R., and Sevringhaus, E. L.: Pancreatic Tumor with Hypoglycemic Status Epilepticus, Acta chir. Scandinav. **71**: 82, 1932.

8. Whipple, A. O., and Frantz, V. K.: Adenoma of Islet Cells with Hyperinsulinism, Ann. Surg. **101**: 1299-1335 (June) 1935.

9. Harris, Seale: Gastro-Intestinal Manifestations of Hypoglycemia, Am. J. Digest. Dis. & Nutrition **2**: 557 (Nov.) 1935.

10. Wauchope, G. M.: Critical Review: Hypoglycemia, Quart. J. Med. **2**: 117 (Jan.) 1933.

11. Holman, E., and Railsback, O. C.: Partial Pancreatectomy in Chronic Spontaneous Hypoglycemia, Surg., Gynec. & Obst. **56**: 591 (March) 1933.

12. Babcock, W. W.: Surgical Affections of the Pancreas, S. Clin. North America **15**: 101-115 (Feb.) 1935.

13. Seeger, S. J.: Pancreatic Lithiasis, Surg., Gynec. & Obst. **40**: 841-846 (June) 1925.

14. Rienhoff, W. F., Jr., and Lewis, Dean: Surgical Affections of the Pancreas Met with in Johns Hopkins Hospital from 1889 to 1932, Including a Report of a Case of Adenoma of the Islands of Langerhans and a Case of Pancreatolithiasis, Bull. Johns Hopkins Hosp. **54**: 386-429 (June) 1934.

15. Frantz, V. K.: Personal communication to the authors.

suddenly, persist for a few hours and then decrease in intensity, but usually they remained as a pressure sensation for several days. About this time the patient also experienced vertigo and blurring of vision, especially on severe exertion. Frequently this resulted in collapse. However, there was at no time loss of consciousness or convulsive movements. Occasionally the patient observed marked tremors of the extremities and fibrillary muscle twitching.

Dyspnea on exertion without apparent cardiac distress later became prominent, and the patient was rendered almost totally incapacitated. In spite of a good appetite and no particular food idiosyncrasies, he lost weight amounting to about 35 pounds (16 Kg.) over a period of three years. No abnormal appetite for carbohydrates was noted. A very evident emotional instability was manifested, especially by the patient's inability to get along with others and also by his extreme annoyance at trivialities. He had no pain and no digestive symptoms but complained of a more or less constant sensation of heaviness in the epigastrium. At no time was there polydipsia or polyuria, and nocturia occurred infrequently.

TABLE 1.—*Dextrose Tolerance Test* *

November 1		December 12	
Fasting	60.0 mg.	Fasting	62.5 mg.
½ hr.	84.7 mg.	½ hr.	74.0 mg.
1½ hr.	104.0 mg.	1½ hr.	85.0 mg.
2½ hr.	41.0 mg.	2½ hr.	60.0 mg.
3½ hr.	33.0 mg.		

* 100 Gm. dextrose was used as the standard dose.

The patient had always enjoyed good health previous to the onset of the present illness. He had had measles, whooping cough and smallpox in childhood, malaria in 1910 and influenza in 1928, from which he recovered with no apparent complications. There had been no accidents and no previous operations. He drank two or three cups of coffee daily and used tobacco and alcohol infrequently. He had been taking acetylsalicylic acid for headache with some relief.

He was born in Kansas but had lived in Washington for the past twenty years and had worked as a plasterer for thirty-five years.

The family history was irrelevant. One sister had Bright's disease and goiter. There was no history of diabetes mellitus.

Physical Examination.—The temperature was 98.6 F., the pulse 72, the blood pressure 120 systolic, 90 diastolic, and the respiration rate 18. He was pale, rather weak and quite thin and he seemed to be mentally alert. He was quite gray for his years. There were no evident cranial defects. The pupils reacted normally. The fundi were normal. Dentures were present. The thyroid was slightly enlarged but free of nodules. Chest expansion was normal. The lung fields were clear. The heart was essentially normal. The abdomen was flat and there were no masses or points of tenderness. The liver was at the costal margin. The spleen was not enlarged. There was a slight tremor of the outstretched fingers.

TABLE 2.—*Postoperative Blood Sugar Estimations (Fasting)*

5/ 4/36	Operation
5/ 5/36	114.3 mg.
5/ 6/36	94.6 mg.
5/ 7/36	93.0 mg.
5/ 9/36	62.5 mg.
5/15/36	54.0 mg.
9/ 8/36	115.0 mg.

The basal metabolic rate was plus 1. October 3 the urinalysis showed specific gravity 1.015, very acid, albumin 0, reduction 0, acetone 0. Occasional pus cells were present. Hemoglobin was 92 per cent (Dare); red blood cells numbered 4,660,000; the color index was 1. White blood cells numbered 9,400, polymorphonuclear leukocytes 68 per cent, small lymphocytes 25 per cent, monocytes 6 per cent, basophils 1 per cent. The sputum was negative for acid-fast organisms. The blood sugar October 28 (Folin-Wu method) was 63.3 mg. per hundred cubic centimeters of blood. The result of the dextrose tolerance test is given in table 1.

The Wassermann reaction was negative. X-ray examination of the chest showed heart and lungs within normal limits. No x-ray examination of the abdomen or skull was made. No blood amylase estimation was done.

Progress in Hospital.—A diagnosis of hypoglycemia of unknown origin was made. The patient improved symptomatically on bed rest and a high carbohydrate diet. He was discharged to the outpatient department, where he was followed until April 30, 1936, when he was readmitted to the hospital.

During the interim the patient consumed large quantities of carbohydrates at frequent intervals. He estimated that he had spent $70 in four months for hard candy alone. Although he had gained weight, felt somewhat stronger and was able to be up and about most of the time, he did not have sufficient energy to perform any sort of manual labor. It was observed that a marked psychoneurotic attitude had developed, which confused the picture somewhat and placed some doubt on the possibility of his multiple symptoms being due to a single etiologic factor.

Operation and Result.—Exploratory laparotomy for a possible pancreatic tumor was performed May 4 under ether anesthesia. A vertical incision to the left of the umbilicus was made. The greater omental bursa was opened below the stomach and the pancreas was exposed. The body of the pancreas was entirely normal but a tumor was palpated in the head, so that the approach was changed. The duodenum was mobilized by cutting the lateral peritoneal reflexion. The pelvis of the gallbladder was dissected up from the common duct, and the common duct then was exposed behind the duodenum and retracted so that the tumor could be removed from the head of the gland. This was done by surgical cautery, and oozing was controlled by electrocoagulation. A strip of plain gauze packing was placed in the area of resection and was surrounded by plain rubber tissue, which was brought out through the upper end of the incision. The abdomen was closed in the usual manner.

TABLE 3.—*Dextrose Tolerance Tests*

5/20/36		6/8/36		7/7/36	
Fasting	62.5 mg.	Fasting	78.7 mg.	Fasting	104 mg.
½ hr.	111.6 mg.	1 hr.	140.8 mg.	1 hr.	180 mg.
1½ hr.	109.6 mg.	2 hr.	103.1 mg.	2 hr.	109 mg.
2½ hr.	86.9 mg.	3 hr.	71.9 mg.	3 hr.	97 mg.

A hard calcareous tumor was embedded in the head of the pancreas (fig. 1). It measured about 2.5 by 3 cm., was definitely circumscribed, and was nodular but not infiltrating. The gallbladder and duodenum were normal. The liver was somewhat sclerotic.

The patient withstood the operation well and, except for a moderate degree of postoperative distention, convalescence was uneventful. Ten per cent dextrose in physiologic solution of sodium chloride was given intravenously on the first three days. Blood sugar estimations, made at least twelve hours after such administration, showed that the blood sugar remained at a normal level. Subsequently the oral intake was sufficient, and the patient was soon eating a general diet without additional feedings. The drains were removed on the eighth day. Healing was delayed by a small amount of pancreatic drainage. This rapidly cleared up, leaving a firm scar in a few weeks.

The day following the operation the patient volunteered the information "I breathe more freely and feel stronger than I have for years." Very soon a remarkable improvement in his disposition was likewise observed, and he began making detailed plans of the work he was going to do following his discharge from the hospital. When last observed, five months later, he had regained his strength but complained of backache after exertion. His appetite was good and he had had no headaches or attacks of weakness. He was eating a normal diet. The sense of heaviness in the epigastrium had disappeared. Dextrose tolerance tests confirmed the disappearance of hypoglycemia (fig. 2). The postoperative blood sugar estimations are given in table 2, and the results of the dextrose tolerance tests in table 3.

COMMENT

The disappointing feature about this case was the character of the tumor. We expected to find a glandu-

lar, secreting growth and found only a calcareous mass, which could not be sectioned. No pancreatic tissue was found by the pathologist. Soft tissue surrounding the stony mass consisted of fat, connective tissue and several small lymph nodes. There seems to be an analogy between adenomas of the pancreas and of the thyroid. Both become calcareous and both may be associated with hyperfunction. We can offer no explanation but submit this report merely as an example of the relief of hypoglycemic symptoms by removal of a calcareous pancreatic tumor.

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TORULOSIS IN MAN

REPORT OF A CASE

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PASADENA, CALIF.

Torulae are yeastlike parasitic fungi frequently found in sputum cultures, especially from patients with chronic bronchitis in the tropics.[1] Under proper conditions they become pathogenic. They have been found in every part of the earth where there have been men educated to recognize them. They occur abundantly in nature on trees, fruits, bees, wasp nests and insects and have even been found in canned butter and milk.

Botanically they fall into the genus of Cryptococcus, which belongs to the subclass of Fungi Imperfecti, the waste basket for all species that have not exhibited a complete life history and many of which have no relation to disease. Torulae are usually round, multiply both in tissues and in cultures by budding, do not form endospores, and are usually red, white or black. Torula histolytica is white.

Although they do not produce mycelia in tissue or in cultures, they do throw out pseudohyphae—projections which may become so long as to dissipate completely the original round shape of the organisms and simulate mycelia—but these do not branch. In contrast to yeasts, torulae ferment sugars little or not at all.

To date there have been less than sixty cases of torula infection in man reported in the entire world. As early as 1901 Bertarelli and Calamida [2] of Germany recognized that these "yeasts" were the causative factor in many throat and tonsil infections, particularly membranous angina. In 1902 Frothingham [3] reported a case of infection of the lung in a horse by a torula.

It was not until 1916, however, that Stoddard and Cutler [4] accurately described the clinical and pathologic characteristics of torula infection in man for the first time. They reviewed the reported instances of systemic blastomycosis and found four cases presenting sufficient apparent variation in character of the infecting organisms and in the pathologic condition to justify their inclusion in a separate group. These were cases reported by von Hansemann,[5] Türk [6] and Rusk.[7] Stoddard and Cutler believe that many torula infections occur which result in recovery without the true nature of the disease being suspected.

Since 1926, cases of torula infection have been reported of the skin,[8] central nervous system,[9] lymph glands,[10] tongue,[11] knee,[12] nasopharynx,[13] meninges,[9] lungs [14] and infections of the entire body.[15]

Ten years ago Dr. Ruth Alvarez [16] published an article on red torula infection of the tongue in which she records having found torula agglutinins in the serum of the patients so affected by a complement fixation test, thereby showing a general reaction of the human body toward these organisms. The agglutination tests were negative two months after the disappearance of the tongue lesions.

Early in 1936 Mitchell [17] published an article in which he associated torula infection with Hodgkin's disease. He asserted that the microscopic picture of torula infection is that of Hodgkin's disease and that these two rare diseases appear together much more frequently than may be accounted for by the theory of probability.[18]

The infecting organisms usually enter man by way of the respiratory tract, most often affecting the lung, which it may obstruct mechanically or erode gradually without inflammatory reaction. Occasionally they enter the lymphatics or blood stream and then may affect any organ in the body—most commonly the nervous system.

The symptoms are varied, depending on the parts attacked, but are always delayed in appearance owing to an insidious onset. In the lungs the picture may suggest tuberculosis or tumor. A cough develops with little or no fever or night sweats but with some pain in the chest, malaise and loss of weight. Physical examination may disclose no abnormal signs other than a few bronchial or subcrepitant râles. There may be a slight leukocytosis, but the differential blood count varies little from normal. The organisms may be found in the sputum as round fungi or as short, hairlike rods. Roentgenograms usually show some scarring. Microscopically the organisms have been found in the parenchyma of the lung as well as in the bronchioles, which they may obstruct mechanically without toxicity of the patient.

The cerebral symptoms resemble those due to chronic meningitis or tumor. Fever, if present, is of only moderate grade. The white count is not elevated. The spinal fluid has shown increase of polymorphonuclear leukocytes and of lymphocytes and positive protein

Dr. J. F. Kessel and Dr. B. F. Sturdivant were of valuable assistance in providing the laboratory tests.

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tests. The organisms may be found in the spinal fluid. The diagnosis may be made by cultures of the spinal fluid on agar or potato at room temperature and by the intraperitoneal inoculation of white mice or rats. The outlook is apparently unfavorable but may be more hopeful than the few reported cases indicate.

The prognosis appears to depend on the virulence of the particular torula involved, on the resistance of the patient and on the tissue involved. As has been said, torulae are frequently found as contaminating microorganisms in sputum cultures. Castellani [1] has isolated them from the sputum of patients in the tropics suffering from chronic bronchitis. These are saprophytic or only semipathogenic. On the other hand, many of the torula infections reported in this country have terminated fatally. Although this is undoubtedly due to the fact that cases not coming to autopsy are not reported for the most part, it nevertheless shows that the virulence of the different torulae varies greatly.

That the prognosis depends on the resistance of the patient is suggested by the fact that the immediate members of the family of patients suffering from torula infection are free from infection by the same organism. That the tissue infected plays a prominent part in the prognosis is proved by the fact that torula infection of the central nervous system ends fatally, while infection of the tongue, lung or skin may end more favorably.

Treatment should include serum from a horse previously inoculated with the torula from the patient to be treated. In the case reported by Alvarez, quinine and neoarsphenamine were being administered for the treatment of chronic malaria at the time the lesion of the tongue was discovered. The lesion began to diminish in size and after about a month of this treatment it was no longer visible. Sheppe,[14] on the other hand, states that arsphenamine is without value in treating torula of the lung and suggests an antituberculosis regimen with large doses of iodides. He suggests tartrates because they have been so effective against leishmaniasis. Gill [13] reported beneficial results in combating Torula histolytica of the blood stream following sinus infection of the head by daily administration of 120 grains (8 Gm.) of potassium iodide internally, 15 grains (1 Gm.) of sodium iodide intravenously and x-ray exposures to the sinuses, while others state that roentgenograms were of no avail in the cases reported by them but on the contrary excited such discomfort that the patients refused further treatment. Until a special torulacide is discovered, I would hesitate to use iodides in torulosis for the same reason that they are not used in tuberculosis. Their use in syphilis is to liberate the infecting organisms in order to facilitate the germicidal medication reaching them.

Early surgical removal of a circumscribed area of torulosis seems as logical to me as the early removal of carcinoma. Surgery is not indicated in torulosis of the central nervous system or in generalized pulmonary torulosis—such as in the case which is about to be reported—any more than surgery would be indicated in generalized carcinomatosis. The removal of a localized lesion either with the cautery or with the radio knife may well be considered as the treatment of choice.

REPORT OF CASE

A white American woman, aged 71, a widow of fourteen years and a semi-invalid for two or three years, complained chiefly of extreme lassitude of several weeks' duration following a chronic cough.

The family history revealed that the father, mother and sister each died with a cough of some years' standing, while but one brother was living and well, at the age of 77.

Her past history was essentially negative except for pneumonia twice about thirty years before and carbuncles on the neck about two years before.

The present illness started with a cough fifty years earlier following her riddance of a sick horse with a "runny" nose, which the patient used to ride in the Middle West. She had had pleurisy from time to time in both sides of the chest but there had been no night sweats or malaise until the past year or two. She had lost considerable strength and weight during the last year, during which the cough, malaise and pleurisy had become progressively worse.

The patient was wrinkled and had a dry skin; she was lying in the semi-Fowler position gasping for breath. Her throat was slightly injected, her chest poorly clothed, with decreased vocal fremitus on the left posteriorly, hyperresonant throughout, with subcrepitant râles over the entire chest. The heart sounds were distant but normal, with a slight enlargement to the left. There were no murmurs. The abdomen and pelvis were essentially normal. Reflexes were active and equal. There were no abnormal signs in the neuromuscular examination.

Sputum tests showed hyaline masses with indefinite radial striations in the fresh preparation. Stained sputum specimens showed many pus cells, a few gram-positive cocci in pairs and short chains and gram-positive "mycelial threads." Sputum cultures showed a profuse growth of salmon pink colonies on agar with a shiny surface identified as a pigmented torula or Cryptococcus Kützing. It is similar in cultural characteristics and appearance to Cryptococcus pararoseus, described by Castellani in 1926.

Two monkeys were inoculated with the same organism and killed for examination at the end of three months. This examination proved to be negative, which may indicate that the torula was nonpathogenic but, on the other hand, may indicate that the resistance of the monkeys to this particular organism was greater than that of the patient who died from it.

Roentgenograms of the lung showed thickening of the linear markings throughout with some parenchymal lesions in the right upper lobe and about the lung roots in both bases.

The urine showed a heavy trace of albumin with occasional granular casts, frequent epithelial, pus and blood cells, a few bacteria, and numerous mucous shreds. The blood counts were high, with 97 per cent hemoglobin, a color index of 88, 5,500,000 red blood cells and 15,400 white blood cells with 11 per cent small lymphocytes, 2 per cent large lymphocytes, 8 per cent transitional cells, 77 per cent polymorphonuclear neutrophils and 2 per cent staff cells.

The course was rapidly down-hill for four days, ending in a toxic and respiratory death, treatment having been symptomatic.

At autopsy, in addition to the usual manifestations of a cardiovascular-renal syndrome, which would be expected in a woman of 71, were found a right and a left chronic pleuritis with adhesions, a small cavity of the left upper lobe of the lung, healed tuberculous lesions of the right and left apexes, abdominal adhesions, and mycotic bronchitis. In cross section the lung seemed filled throughout with a thick tenacious mucopurulent material, yellow with a slightly pinkish tint. Microscopic examination of the lung tissue showed round cell infiltration with areas of edema and interstitial fibrosis. The patient obviously died from the effects of a microscopic parasite in the bronchioles.

CONCLUSION

Whether the occasional pathogenesis of torulae depends on occasional variations in their own virulence, on the hypersensitivity, or on the lowered resistance of the persons affected is not yet proved. But it would appear from the facts in hand that both factors play a part. With the further development and greater popularity of surgery there is hope for more frequent and correct diagnoses if not for a greater percentage of cures.

595 East Colorado Street.

THE TREATMENT OF MENINGOCOCCIC MENINGITIS WITH SULFANILAMIDE

PRELIMINARY REPORT

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AND
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A number of investigators have pointed out the therapeutic value of sulfanilamide (para-amino-benzene-sulfonamide) in infections due to the beta-hemolytic streptococcus. A review of this work will be found in the recent article of Long and Bliss.[1] Buttle and his co-workers[2] and Proom[3] have also demonstrated protective and curative properties for the drug against meningococcic infections in mice. This paper will report the preliminary observations on the use of sulfanilamide in the treatment of ten cases of meningococcic meningitis and one of septicemia only. The ages of the patients ranged from 1 to 34 years. After the first two patients had been treated, the drug was used in every case admitted for meningococcic infection. There was therefore no selection of cases; they ranged in severity from moderate to severe illness.

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Summary of Results

Date	Spinal Fluid: Cell Count	Spinal Fluid: Per Cent of Polymorphonuclears	Spinal Fluid: Globulin	Spinal Fluid: Sugar	Spinal Fluid: Culture	Sulfanilamide*: Intraspinally, Cc.	Sulfanilamide*: Subcutaneously, Cc.	Comment
Case 1.—G. T., Negro man, aged 21								
12/31	21,000	..	4 plus	.....	Positive	30	300	Critically ill, unconscious; smear of spinal fluid showed many organisms; blood culture positive
1/ 1	21,000	80	4 plus	0	0	30	300	
	20,000	80	4 plus	0	0	30	300	
1/ 2	9,400	90	3 plus	0	0	25	300	
1/ 3	2,400	84	Trace	3 plus	0	30	270	Constant improvement
1/ 4	1,030	90	Trace	2 plus	0	30	270	
1/ 6	840	90	Trace	1 plus	0			
1/19	30	0	0	2 plus	0			
2/ 1	..	..	.....	.....	.....	..	...	Discharged well
Case 2.—E. W., white boy, aged 7 years								
1/ 9	11,000	92	1 plus	1 plus	Positive	30	100	Moderately ill
	5,600	..	1 plus	1 plus	Positive	20	75	
1/10	2,750	..	1 plus	1 plus	0	10	100	
1/11	880	80	Trace	1 plus	0	17		
1/12	60	35	0	2 plus	0	30	70	
1/25	8	0	0	2 plus	0			
2/12	..	..	.....	.....	.....	..	...	Discharged well
Case 3.—L. W., Negro girl, aged 5 years								
1/14	9,500	82	2 plus	0	Positive	25	200	Moderately ill; blood culture sterile
	2,400	85	1 plus	0	Positive	10	190	
1/15	2,500	90	4 plus	1 plus	Positive	15	185	
	4,800	70	2 plus	0	Positive	20	180	
1/16	3,500	90	2 plus	0	Positive	30	170	
1/17	1,200	75	1 plus	Trace	0	20	180	
							200	
1/18	384	..	Trace	Trace	0	15	185	
1/19	...	..	.....	.....	.....	..	200	
2/ 3	2	20	0	2 plus	0	..	...	Discharged well
Case 4.—M. A., white boy, aged 2 years								
1/17	9,400	95	1 plus	0	Positive	20	80	Semiconscious; quite ill
1/18	8,200	95	1 plus	1 plus	Positive	25	75	
	3,450	90	Trace	0	Positive	10	190	
1/19	830	80	Trace	2 plus	0	20	80	
1/20	485	40	Trace	2 plus	0	30	70	
1/21	108	25	Trace	2 plus	0	15	85	Transient arthritis in right ring finger
1/22	...	..	.....	.....	.....	..	100	
2/ 2	2	0	0	2 plus	0			
2/ 7	..	..	.....	.....	.....	..	...	Discharged well
Case 5.—J. C., Negro man, aged 34								
1/22	9,000	95	2 plus	0	Positive	30	270	Severely ill, semiconscious
1/23	4,500	90	1 plus	0	Positive	28	272	
	2,800	80	2 plus	0	0	20	280	
1/24	1,750	..	Trace	0	0	30	270	
1/25	1,775	75	1 plus	Trace	0	25	275	
1/26	.....	..	.....	.....	.....	..	300	
2/ 9	60	0	Trace	1 plus	0	..	...	Discharged well
Case 6.—C. P., white boy, aged 10 years								
1/24	9,000	92	Trace	0	Positive	35	165	Moderately ill; blood culture sterile
	11,000	..	Trace	0	0	30	170	
1/25	17,600	95	2 plus	0	0	25	175	
	12,200	95	1 plus	0	0	20	180	
1/26	3,650	90	Trace	0	.....	35	175	
1/27	.....	..	.....	.....	.....	..	200	
1/29	99	..	Trace	0	.....	..	200	Transient arthritis in right wrist
2/11	10	0	0	Trace	.....	..	...	Discharged well
Case 7.—R. B., Negro man, aged 23								
1/29	11,500	93	2 plus	1 plus	Positive	22	200	Moderately ill, conscious and cooperative; blood culture sterile
1/30	12,000	95	3 plus	0	Positive	30	270	
	10,100	95	3 plus	0	Positive	30	270	
1/31	14,600	95	2 plus	Trace	0	25	275	
	12,000	95	1 plus	Trace	0	25	275	
2/ 1	4,480	95	2 plus	Trace	0	20	180	
							300	
2/ 2	1,880	82	1 plus	Trace	0	20	280	
2/ 3	.....	..	.....	.....	.....	..	300	
2/ 9	26	0	Trace	1 plus	0			
2/17	28	2	0	Trace	0	..	...	Discharged well
Case 8.—W. C., white woman, aged 28								
1/30	13,400	95	2 plus	0	Positive	25	275	Severely ill; semiconscious; blood culture sterile
							300	
1/31	8,900	90	2 plus	Trace	0	30	230	
	11,500	95	1 plus	Trace	0	25	275	
2/ 1	2,600	..	1 plus	Trace	0	20	280	
							300	
2/ 2	930	82	0	Trace	0	20	200	
2/17	11	0	0	1 plus	0	..	...	Discharged well
Case 9.—E. M., Negro man, aged 27								
1/30	9,850	95	2 plus	0	Positive	25	275	Critically ill; blood culture sterile
1/31	22,200	95	3 plus	0	Positive	30	270	
	11,000	98	3 plus	0	0	25	275	
2/ 1	3,350	95	Trace	Trace	Positive	20	270	
	9,640	93	2 plus	0	0	20	280	
2/ 2	2,240	78	Trace	Trace	0	25	270	Pneumonia
2/ 4	158	68	1 plus	2 plus	0	..	300	Died
Case 10.— N. A., Negro girl, aged 9 years								
2/ 2	7,400	94	4 plus	0	0	20	180	Clinically meningococcic meningitis; moderately ill
2/ 3	20,200	95	4 plus	Trace	0	20	180	
	8,200	96	4 plus	Trace	0	20	180	
2/ 4	.....	..	.....	.....	.....	..	200	
2/ 9	91	0	Trace	1 plus	0	..		
2/19	42	14	0	1 plus	.....	..	...	Discharged well
Case 11.—C. C., white boy, aged 1 year								
1/30	6	0	0	1 plus	0	..	100	Severely ill; many petechiae; blood culture positive; two siblings died of fulminating meningitis day before
1/31	.....	..	.....	.....	.....	..	100	
							100	
2/ 1	.....	..	.....	.....	.....	..	100	
2/ 2	.....	..	.....	.....	.....	..	100	Constant improvement
2/19	.....	..	.....	.....	.....	..	...	Discharged well

* Sulfanilamide was used in 0.8 per cent solution in physiologic solution of sodium chloride.

METHOD OF TREATMENT

Within the limitations of individual need, all patients were treated in the same manner, by subcutaneous and intraspinal injection of the drug. The solution was prepared in the following manner: A measured volume of sterile physiologic solution of sodium chloride was heated in a flask. When the saline began to boil, the flask was removed from the flame and a weighed amount of sulfanilamide was added in quantity to make an 0.8 per cent solution of the drug. The mixture was cooled to about 37 C. and injected immediately.

After a diagnosis of meningococcic meningitis had been made, sulfanilamide solution was injected intraspinally into the patient in amounts varying from 10 to 30 cc. As a general rule the amount injected was from 5 to 10 cc. less than the volume of spinal fluid removed. A larger amount of the solution was also given subcutaneously, approximately 100 cc. being injected for each 40 pounds (18 Kg.) of body weight. Both the intraspinal and subcutaneous treatments were repeated every twelve hours for the first two days and once each day thereafter until definite improvement was evident. In some instances subcutaneous injection of the drug was continued for several days longer than the intraspinal treatment.

RESULTS

The results are summarized in the accompanying table. Certain interesting facts are evident. In some cases the cell count of the spinal fluid fell rapidly and progressively. In others the count remained elevated for several days, then decreased precipitously. Culture of the spinal fluid of a number of patients was sterile after the first treatment; for others several treatments were required, but in no case was the organism recovered longer than three days after instigation of treatment. The speed of clinical improvement also varied from rapid to a more protracted return to normal. In two patients transient arthritis developed. There was one death. This patient (E. M., patient 9) was desperately ill at the time of admission, showed symptoms of encephalitic involvement and died of pneumonia on the fifth day despite the fact that the spinal fluid had been sterile for three days and the cell count was only 158 on the day of death.

No untoward effects following the use of sulfanilamide have been noted. When given subcutaneously the solution was rapidly absorbed and gave rise to no more tenderness or reaction at the site of injection than that which follows the subcutaneous administration of physiologic solution of sodium chloride. No signs of local or systemic reaction followed intrathecal injection. Although transient methemoglobinemia, sulfhemoglobinemia, mild acidosis and morbilliform rash have each occasionally occurred in patients treated with sulfanilamide for streptococcic infections, none of these conditions have been noted in the patients in this series.

COMMENT

There are obviously too few cases in this preliminary series to permit any very definite conclusions. The therapeutic response of the patients, however, to treatment with sulfanilamide seems quite comparable to that which usually follows treatment with specific antiserum. The mortality (9 per cent) in such a small series could have no real significance. On the other hand it is so much less than one would expect in cases treated only by repeated subarachnoid drainage that one cannot escape the impression that sulfanilamide has some definite value in the treatment of meningococcic infections. Only with more widespread experience can the decision be reached whether the drug has sufficient therapeutic value to supplant antimeningococcus serum or whether it should be used only as an adjunct to serum treatment. One definite value of sulfanilamide over antimeningococcus serum is the absence of any irritative effect due to foreign protein. Certainly this property of serum, especially when it is injected into the subarachnoid space, gives rise to serious complications.

CONCLUSIONS

Sulfanilamide has been used in the treatment of ten patients with meningococcic meningitis and of one with septicemia only. The response to treatment was good in all the patients and seemed quite comparable to that caused by the specific antiserum.

Clinical Notes, Suggestions and New Instruments

ESOPHAGEAL OBSTRUCTION FROM A HYGROSCOPIC GUM LAXATIVE (SARAKA)

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Although intestinal obstruction from hygroscopic gum laxatives is a condition that has been observed many times, no record of esophageal obstruction from such a cause has been found in the recent literature. The widespread use of gum laxatives and the potential seriousness of esophageal obstruction caused by such a preparation warrant the report of the following case:

G. S., a man, aged 47, had been suffering from constipation for many years. He had found Saraka a beneficial laxative and had been taking this proprietary drug from three to four times a week for seven years. The company that markets the preparation directs that from 1 to 2 drachms of Saraka be taken after meals and washed down with sufficient water, or that the laxative be ingested with stewed fruit. The patient, however, was accustomed to take a much larger quantity of the Saraka than directed. He would place a handful of the laxative in his mouth and then swallow the substance with water.

According to the Council on Pharmacy and Chemistry of the American Medical Association, Saraka owes its activity to two elements, an indigestible gum called bassorin, which has the ability, like agar, of absorbing moisture and increasing greatly in bulk, and the drug frangula, which is practically identical with cascara.

On the evening of July 1, 1935, the patient in his usual manner placed a large handful of Saraka in his mouth and proceeded to wash this down with water. While drinking the water, he experienced laryngeal irritation and developed an attack of paroxysmal cough. After the cough had ceased he attempted to drink more water, but this precipitated violent retching and regurgitation of the fluid and particles of the Saraka. He soon began to experience a substernal ache, which became very severe during the night. It felt to him as though "tissues were tearing." Any further swallowing of water caused explosive reactions of retching and regurgitation, and marked pain. The patient could not assume a recumbent or semirecumbent position without increasing the pain considerably and experiencing a constricting and choking sensation.

The following morning, while traveling from his home in the country to his physician in New York, the late Dr. Herman Mond, the patient had to sit in a doubled-up position in order to tolerate the pain and distress. Dr. Mond made a fluoroscopic study of the esophagus with barium sulfate. He noted that the fluid stopped abruptly and completely at a distance of two-

From the Department of Laryngology of the Mount Sinai Hospital.

thirds the length of the esophagus and that the lower portion of the esophagus proximal to the obstruction was quite distended. I was consulted and immediately performed an esophagoscopy.

On esophagoscopy, the lower third of the esophagus was found impacted with a gelatinous, resinous substance, which had dilated the esophagus to twice its normal width. The material was in a solid mass and could not be aspirated. The mass was broken up by a punch forceps into small pieces, which were removed by forceps, suction and moist cotton swabs. No evidence of any neoplasm or cardiospasm was noted. The patient was not permitted to swallow any fluid until the following morning, at which time this was accomplished without any discomfort.

It is now a year and a half since the accident occurred, and the patient has experienced no esophageal symptoms of any kind. During this period he has been in good health.

The condition presented in this communication is very rare and may be attributed to carelessness on the part of the patient. It emphasizes a possible danger of the injudicious ingestion of hygroscopic gum laxatives and the importance of following exact directions. An esophageal impaction of this type may result in a tear of the esophageal wall from extreme dilatation or in a perforation from difficult instrumentation.

12 East Eighty-Sixth Street.

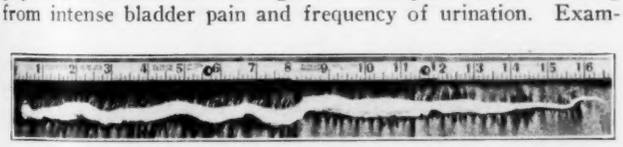
MEDICAL CURIOSITIES

P. T. GEYERMAN, M.D., HOT SPRINGS, S. D.

I realize that the relating of this case is of no particular scientific value, yet it must be of such rare occurrence that a brief report should be of interest to the medical profession. As far as I know, no similar case has ever been reported.

H. D., a man aged 44, single, a rancher, was referred to me by his family physician July 7, 1931, with a diagnosis of having a snake in the bladder. I obtained the following history from the patient: He had had bladder symptoms for about fifteen years, consisting of frequency and dysuria. There was nothing else in the urinary or general history of any importance.

Two days previously he had passed a small decapitated snake into the urethra and while doing this, he stated, it slipped from his grasp and passed into the bladder. The patient had a hypospadias but no evidence of any further trouble. General physical examination was negative. The patient was suffering from intense bladder pain and frequency of urination. Examination of the urine showed a large amount of pus and some blood cells and four plus albumin. The patient was very reticent about answering questions but on being questioned closely admitted having inserted the snake into the bladder, believing that it might give him relief from the bladder symptoms which he had complained of for a number of years.



Length of snake taken from bladder of patient.

A roentgenogram of the bladder revealed rather distinctly the vertebrae of the reptile. The next morning he was prepared for a probable cystotomy, with the thought in mind, however, that the snake might be removed through the cystoscope. He was given a spinal anesthetic and the cystoscope was passed. The cystitis was so intense that it required a good deal of irrigation before a clear cystoscopic view could be obtained. However, the snake soon came into view and the tail could be seen waving in the fluid. This was grasped by forceps and pulled into the cystoscope and held fast. As the snake was too large to be pulled through the instrument, the instrument and snake were pulled out together. The snake was what is commonly known as a "garter snake" and measured 18 inches (45.7 cm.) in length. The patient made an uneventful recovery and has had no further trouble.

This case is probably of more interest from the standpoint of sexual perversion than from any other angle.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

STATUS OF DIATHERMY AND SHORT WAVE DIATHERMY

Medical diathermy is the use, for therapeutic purposes, of heat generated in the body tissues by high frequency currents, insufficient in amount, however, to produce temperatures high enough to destroy the tissues or impair their vitality. These currents are applied locally by three methods: (1) with contact metal electrode, (2) with a high frequency alternating electric field electrode or (3) with a high frequency electromagnetic field coil.

The first method is the one by which conventional diathermy is applied. The frequency of oscillations is usually from one-half million to two million cycles per second.

The second method for the local application of diathermy currents is the use of a high frequency electric field. The frequency of oscillations may be from ten million to a hundred million cycles per second. The electrodes are not in contact with the skin, as conventional medical diathermy electrodes are. These short wave diathermy electrodes are made of metal insulated by rubber or felt. The electrodes are so encased as to prevent arcing from the metal to the skin. When applied they are usually separated from the skin by a half-inch layer of dry felt or towels. The towel or felt is placed between the electrodes and the skin to prevent the accumulation of surface moisture into small conducting areas, which might produce burns.

The methods of applying the electric field that have been accepted by the Council on Physical Therapy are those making use of double cuff electrodes and air-spaced electrodes. Ordinarily, cuffs are placed so that the part to be treated is midway between them. The double cuff method, according to the experiments submitted to the Council, always showed superior heating of the deep tissues of the human thigh over the pad electrode method. In fact, this mode of application of electric field electrodes was the only one in these experiments that insured better heating of the deep tissues than was obtained with conventional diathermy employing contact electrodes applied opposite each other. The Council has not accepted pad electrodes for use with the electric field method. Physicians buying short wave diathermy machines should consult the published acceptance of these machines regarding their relative efficiency, and furnished accessories.

Air spaced electrodes for use with the electric field have been accepted by the Council for certain technics; for example, when placed on the same side of the part to be treated, and in some instances when applied on either side of the part.

The third method of heating tissues by high frequency currents is by electromagnetic fields, or so-called electromagnetic induction. In this method the current is carried to the patient through a flexible, heavily insulated cable, which is wound around the part to be treated in the form of coils or loops. The part under treatment is separated from the coil or loop by a towel for the reasons mentioned.

Burns may occur with any method of applying short wave medical diathermy as well as with the contact metal electrodes of conventional diathermy. The manufacturers of short wave machines claimed in their early advertising matter that burns were impossible. The Council was unable to accept these claims, since evidence was available that burns did occur.

To avoid burns, several layers of absorbent material are placed between the electrodes or coils and the skin, to absorb perspiration. The collection of moisture between the skin and the electrodes would cause a concentration of energy at these points, and burns would result if the patient did not inform the operator that there was a burning sensation. The patients who have been burned have had a distinct sensation of burning. This would be expected, as the subcutaneous tissues are always warmer than the deeper tissues directly under the electrodes. Such burns resemble those obtained by electrocoagulation and they are slow in healing.

The effects of common electric currents when applied to the body tissues may be thermal, chemical or mechanical in nature, depending on the physical characteristics of the current. High frequency currents apparently avoid the mechanical and chemical effects but display the ability to heat the body tissues through which they pass. At the present time it is believed that the local physiologic effects of the three methods of applying high frequency currents aforementioned are limited to the effects of the heat produced.

So far as competent investigators have been able to determine, there is no demonstrable, selective thermal action, or specific biologic or bactericidal actions in vivo that may be attributed to short wave diathermy. To date, the effects produced can be explained only on the basis of the generation of heat.

The conditions in which heat is a beneficial adjunct in treatment are to be found in the Handbook of Physical Therapy published by the American Medical Association.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIGITALIS (See New and Nonofficial Remedies, 1936, p. 168).

The following dosage forms have been accepted:

Tablets Digitalis Duo-Test McNeil, ½ grain: Each tablet contains ½ cat unit.

Tablets Digitalis Duo-Test McNeil, 1 grain: Each tablet contains ⅔ cat unit and is dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax-salol mixture and then sugar coated green.

Tablets Digitalis Duo-Test McNeil, 1½ grains: Each tablet contains 1 cat unit and is dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax-salol mixture and then sugar coated green.

Capsules Digitalis Duo-Test McNeil, 1½ grains: Each capsule contains 1 cat unit and is dispensed in black capsules.

Prepared by the McNeil Laboratories, Inc., Philadelphia.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1936, p. 392).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Diphtheria Toxoid, Alum Precipitated.—Prepared by treating diphtheria toxoid with a solution of alum until complete precipitation is produced. The precipitate is thoroughly washed and then suspended in physiologic solution of sodium chloride. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health: guinea-pigs weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood. Ortho-chloro-mercuri phenol 1: 20,000 is used as the preservative.

Marketed in packages of one 0.5 cc. vial and one 1 cc. vial; in packages of ten 0.5 cc. vials and ten 1 cc. vials; and in packages of one 5 cc. vial and one 10 cc. vial.

AMINOPYRINE (See New and Nonofficial Remedies, 1936, p. 340).

Aminopyrine-"National."—A brand of aminopyrine-U. S. P.

Manufactured by the National Aniline and Chemical Co., New York.

Aminopyrine Tablets, 5 grains.

COD LIVER OIL (See New and Nonofficial Remedies, 1936, p. 450).

Möller Plain Cod Liver Oil Standardized.—It has a vitamin A potency of not less than 1,000 units (U. S. P.) per gram and a vitamin D potency of not less than 150 units (U. S. P.) per gram.

Dosage.—For adults, 4 cc. (60 minims) to 15 cc. (225 minims) three times a day; for children, 2 cc. (30 minims) to 4 cc. (60 minims) three times a day.

Manufactured by Peter Möller, A/S, Oslo, Norway; distributed in the United States by Schieffelin & Co., New York. No U. S. patent or trademark.

Möller plain cod liver oil standardized complies with the U. S. P. standards for cod liver oil. In addition it is required to have a vitamin A potency of not less than 1,000 units per gram and a vitamin D potency of not less than 150 units per gram.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

BLUE LABEL TOMATO JUICE

Manufacturer.—Curtice Brothers Company, Inc., Rochester, N. Y.

Description.—Canned tomato juice seasoned with salt, retaining in high degree the natural vitamins.

Manufacture.—Varieties of ripe tomatoes meeting specific requirements are inspected, mechanically washed, scalded, hand trimmed and cored. The juice is mechanically expressed, heated, and seeds and skins are removed. The juice is seasoned with salt, filled into cans at 82 C. and processed for twenty minutes at 82 to 85 C.

Analysis (submitted by manufacturer).—Moisture 92.9%, total solids 7.1%, ash 0.9%, sodium chloride (NaCl) 0.6%, fat (ether extract) trace, protein (N × 6.25) 1.1%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 4.9% and total acid as citric 0.5%.

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—Approximately 74 International units vitamin C per fluidounce.

SEXTON BRAND RED PITTED CHERRIES, JUICE PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned cherries, packed in juice.

Manufacture.—Cherries, picked without stems, are washed, inspected, mechanically pitted, automatically filled into cans and weighed. The cans are filled with juice, exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 87.4%, total solids 12.6%, ash 0.48%, fat (ether extract) 1.0%, protein (N × 6.25) 1.0%, crude fiber 0.14%, carbohydrates other than crude fiber (by difference) 10.0%.

Calories.—0.53 per gram; 15 per ounce.

Claims of Manufacturer.—For diets in which sweetened fruit is proscribed.

SEXTON BRAND FRESH GREEN ASPARAGUS, WATER PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned green asparagus, packed in water.

Manufacture.—Green asparagus, harvested when spears are from 5 to 8 inches above ground, is washed, sorted for quality and size, cut uniformly, again washed, sorted, mechanically cut, washed again in cold, hot and cold waters, again inspected and placed in cans. The cans are inspected for grading, counts and proper quality, filled with water, exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 93.7%, total solids 6.3%, ash 0.49%, fat (ether extract) 0.2%, protein (N × 6.25) 2.3%, crude fiber 0.41%, carbohydrates other than crude fiber (by difference) 2.9%.

Calories.—0.3 per gram; 9 per ounce.

Claims of Manufacturer.—Choice quality asparagus packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

NORRIS BRAND EVAPORATED MILK

Distributor.—Schuylkill Valley Grocery Co., Inc., Norristown, Pa.

Packer.—Amboy Milk Products Company, Amboy, Ill.

Description.—Canned, evaporated milk; the same as Amboy Brand Unsweetened Evaporated Sterilized Milk (THE JOURNAL, May 7, 1932, p. 1655).

MEDICAL LICENSURE STATISTICS FOR 1936

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The Council on Medical Education and Hospitals presents herewith medical licensure statistics for the thirty-fifth consecutive year. The report covers the year 1936 and deals with statistics regarding (*a*) medical licensing boards of the United States, including the District of Columbia and territories and possessions of the United States, (*b*) boards of examiners in the basic sciences, and (*c*) the National Board of Medical Examiners.

Official reports have been contributed by the officers of the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands; the homeopathic examining boards of Arkansas, Connecticut, Delaware, Louisiana and Maryland; the eclectic examining board in Arkansas; the ten basic science examining boards in operation (Arizona, Arkansas, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin), and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana and the eclectic board in Arkansas did not license any one during the year. Acknowledgment is tendered the officers of the foregoing boards for their ready cooperation and the complete reports they have furnished.

Reports of all examinations and those licensed without examination are carefully compared with lists of graduates furnished by medical school officials, so that errors in regard to names of applicants, the medical schools or the years of graduation are promptly corrected. In the occasional instance in which the applicant has not graduated or there is a record of irregularity, the state board is promptly notified. Credentials of physicians coming from abroad are verified by direct correspondence with the foreign medical schools. Thus the statements regarding the medical education and licensure of all physicians are known to be accurate.

The data supplied were also entered in the biographic file of physicians and others maintained by the American Medical Association, thus serving a dual purpose. About thirty licensing boards obtain from the American Medical Association verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all licensing boards.

The tables showing medical licensing boards results include figures regarding the number of candidates for medical licensure in 1936, the number licensed and the number added to the profession.

LICENTIATES

The first table contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 9,008 licenses issued, 6,263 on the basis of examination and 2,745 by endorsement of credentials. In several states (table 9) the internship is a requisite for practice, but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. Licenses are also withheld for lack of citizenship or minor technicalities. The figures, therefore, for those licensed after examination include many who were examined in 1935 and even a few in previous years. New York issued the largest number of licenses, 1,517, Pennsylvania issued 629, Illinois 577, California 567, Ohio 464, Massachusetts 352 and Texas 325. A comparison with similar figures for 1935 indicates that in New York 243 more licenses were issued, in Pennsylvania 104, Illinois 52, California 95, Ohio 48, Massachusetts 89 and Texas 6.

TABLE 1.—*Licentiates—1936*

	Licensed on Basis of		
	Examination	Reciprocity and Endorsement	Total
Alabama	23	48	71
Arizona	26	41	67
Arkansas	46	13	59
California	370	197	567
Colorado	79	40	119
Connecticut	80	62	142
Delaware	17	8	25
District of Columbia	32	44	76
Florida	154	..	154
Georgia	89	21	110
Idaho	12	30	42
Illinois	469	108	577
Indiana	122	43	165
Iowa	85	43	128
Kansas	97	30	127
Kentucky	93	45	138
Louisiana	150	19	169
Maine	53	10	63
Maryland	252	25	277
Massachusetts	273	79	352
Michigan	207	82	289
Minnesota	191	27	218
Mississippi	23	14	37
Missouri	209	70	279
Montana	15	32	47
Nebraska	75	21	96
Nevada	..	13	13
New Hampshire	22	15	37
New Jersey	168	129	297
New Mexico	3	47	50
New York	932	585	1,517
North Carolina	64	45	109
North Dakota	14	9	23
Ohio	324	140	464
Oklahoma	62	37	99
Oregon	49	22	71
Pennsylvania	539	90	629
Rhode Island	30	11	41
South Carolina	32	9	41
South Dakota	15	6	21
Tennessee	184	34	218
Texas	176	149	325
Utah	23	12	35
Vermont	26	14	40
Virginia	106	53	159
Washington	58	45	103
West Virginia	59	29	88
Wisconsin	111	67	178
Wyoming	1	19	20
U. S. Terr. and Possessions*	23	13	36
Totals	6,263	2,745	9,008

* Alaska, Canal Zone, Hawaii, Puerto Rico, and Virgin Islands.

Six states licensed between 200 and 300 licentiates and thirteen between 100 and 200. Twenty-two states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico and the Virgin Islands licensed less than 100. None were licensed by examination in Nevada. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. The total number licensed, 9,008, was 1,104 more than in 1935. Licensed on the basis of examination, the figure increased 549 and those licensed without examination increased 555. This figure, however, does not represent 9,008 individuals,

(CONTINUED ON PAGE 1414)

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	ARKANSAS																																													
1	University of Arkansas School of Medicine			1	0	41	0	1	2									2	0															2	0											1
	CALIFORNIA																																													
2	College of Medical Evangelists			0	1			62	1	1	0							1	0			1	0					1	0	3	0									3	0			2
3	Stanford University School of Medicine							43	2																																	2	0	3	0	3
4	University of California Medical School							55	1																																					4
5	University of Southern California Sch. of Med			1	0			28	0																																					5
	COLORADO																																													
6	University of Colorado School of Medicine			1	1			2	0	42	0																																			6
	CONNECTICUT																																													
7	Yale University School of Medicine							2	0			3	0					2	0					1	0															2	0					7
	DISTRICT OF COLUMBIA																																													
8	George Washington University School of Med			1	0			1	0			4	3			16	0							1	0									1	0			7	0	2		1	1	0	1	0
9	Georgetown University School of Medicine							1	0			4	3			12	1	0	1									1	0					2	0	2	3	3	3					9
10	Howard University College of Medicine															1	0											1	0							5	3							10
	GEORGIA																																													
11	Emory University School of Medicine	1	0															16	6	47	0																							11
12	University of Georgia School of Medicine																	9	4	37	0																							1	0	12
	ILLINOIS																																													
13	Loyola University School of Medicine							5	1									1	0			1	0	58	1	6	0									1	0			6	0	1	0	13
14	Northwestern University Medical School			1	0			14	0	2	0							2	0			2	0	90	0			1	9	4	0			1	0	1	0			1	0	7	0	11	0	14
15	University of Chicago, Rush Medical College	6	0	1	0	1	0	28	1			2	0					6	0	1	0	1	0	62	0					1	0			1	0					4	0	6	0	13	0	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences			1	1			1	0															16	0																	1	0	2	0	16
17	University of Illinois College of Medicine							10	0			0	1					2	2					109	0	1	0			2	0	1	0					1	0			3	0	2	0	17
	INDIANA																																													
18	Indiana University School of Medicine							1	0									2	0							104	0													1	1			4	0	18
	IOWA																																													
19	State University of Iowa College of Medicine							5	0															1	0			88	0					1	0									2	0	19
	KANSAS																																													
20	University of Kansas School of Medicine			1	1																					1	0			70	0			1	0											20
	KENTUCKY																																													
21	University of Louisville School of Medicine							2	0									2	1					1	0							75	0	1	0	1	0							21
	LOUISIANA																																													
22	Louisiana State University Medical Center																	3	0															26	0									1	0	22
23	Tulane University of Louisiana School of Med	7	0	0	1	1	0			1	0							15	2	1	0			1	0	1	0			1	0			83	0									3	0	23
	MARYLAND																																													
24	Johns Hopkins University School of Medicine							5	0			1	0					4	1					1	0															47	0	4	0	1	0	4	0	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons							2	0			4	0	1	0			4	0																			1	0	68	1	3		1				25
	MASSACHUSETTS																																													
26	Boston University School of Medicine											2	1																									9	0			13	4	1	0	26
27	Harvard University Medical School	1	0					4	0	1	0	6	0					6	0			2	0													1	0	6	0	2	0	34	1	3	0	5	0	27
28	Tufts College Medical School							1	1			16	5					1	1					1	0											11	0			40	13	2	0			28
	MICHIGAN																																													
29	University of Michigan Medical School			1	0			4	0			1	0											3	0															6	0	99	0	2	0	29
30	Wayne University College of Medicine																							1	0															1	0	82	0			30
	MINNESOTA																																													
31	University of Minnesota Medical School			1	0			2	0									1	0			1	0	1	0									1	0							3	0	89	1	31
	MISSOURI																																													
32	St. Louis University School of Medicine			1	0			4	0	1	0	1	1									1	0	1	0	1	0													2	1			1	0	32
33	Washington University School of Medicine	2	0	1	0			4	0	1	0							2	1					1	0									1	0							1	0			33
	NEBRASKA																																													
34	Creighton University School of Medicine			3	0			21	3	2	0																	5	0	7	0			1	0	1	0	1	0					3	0	34
35	University of Nebraska College of Medicine			1	0			6	0	1	0									1	0																	1	1	3	0	1	0	1	0	35
	NEW YORK																																													
36	Albany Medical College																	1	0																											36
37	Columbia University Coll. of Phys.and Surgs							2	0			7	1					2	0					1	0											1	0			4	0	1	0			37
38	Cornell University Medical College							2	0	1	0	1	0																											1	1					38
39	Long Island College of Medicine											4	1	1	0			0	3																			1	0			1	0			39
40	New York Medical College and Flower Hospital																	2	1																					1	0	1	0			40
41	New York University College of Medicine											1	0					2	0																					1	0					41
42	Syracuse University College of Medicine																	2	0															1	0							2	0			42
43	University of Buffalo School of Medicine																	2	1																	1	0	1	0					1	0	43
44	University of Rochester School of Medicine							3	0	1	0	2	0							1	0	1	0	1	0															1	1	1	0			44
	NORTH CAROLINA																																													
45	Duke University School of Medicine			1	0													4	0									1	0											1	0	1	0			45
	OHIO																																													
46	Ohio State University College of Medicine															1	0	3	0							1	0																			46
47	University of Cincinnati College of Medicine			1	1											1	0	4	0													3	0									3	0	47
48	Western Reserve University School of Medicine	1	0					2	0									3	1																					2	0					48
	OKLAHOMA																																													
49	University of Oklahoma School of Medicine			1	0			2	0															2	0					1	0													49
	OREGON																																													
50	University of Oregon Medical School							8	0			1	0									3	0											1	0											50
	PENNSYLVANIA																																													
51	Hahnemann Medical College and Hosp. of Phila.			1	0			2	0			3	0	6	0																					1	0	20	0	1	1	2	0			51
52	Jefferson Medical College of Philadelphia							2	0	1	0	0	1	8	0			5	0																			2	0	3	0			1	0	52
53	Temple University School of Medicine											1	0	1	0			1	0																					1	2			3	0	53
54	University of Pennsylvania School of Medicine	2	0	2	0			2	0	1	0	2	0					1	0											4	0	2	0			1	0	2	0	4	0			9	0	54
55	University of Pittsburgh School of Medicine											1	0					2	1																					1	1			2	0	55
56	Woman's Medical College of Pennsylvania							1	0			1	0					1	0																					2	0					56
	SOUTH CAROLINA																																													
57	Medical College of the State of South Carolina																	1	0					1	0									1	0											57
	TENNESSEE																																													
58	Meharry Medical College	0	1					1	1									4	1	1	0			1	0									2	0											58
59	University of Tennessee College of Medicine	1	0	2	0	3	0			1	0							10	2															4	0											59
60	Vanderbilt University School of Medicine	1	0					2	0									4	0					1	0															1	0			2	0	60
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																							

P = Passed; F = Failed.

| Marginal Number | Mississippi | | Missouri | | Montana | | Nebraska | | Nevada | | New Hampshire | | New Jersey | | New Mexico | | New York | | North Carolina | | North Dakota | | Ohio | | Oklahoma | | Oregon | | Pennsylvania | | Rhode Island | | South Carolina | | South Dakota | | Tennessee | | Texas | | Utah | | Vermont | | Virginia | | Washington | | West Virginia | | Wisconsin | | Wyoming | | U. S. Territories and Possessions* | | Totals | Examined—Passed | Examined—Failed | Percentage Failed | No. Boards Examined by | Marginal Number |
|---|---|---

Marginal Number	SCHOOL	1 Alabama P F	2 Arizona P F	3 Arkansas P F	4 California P F	5 Colorado P F	6 Connecticut P F	7 Delaware P F	8 Dist. Columbia P F	9 Florida P F	10 Georgia P F	11 Idaho P F	12 Illinois P F	13 Indiana P F	14 Iowa P F	15 Kansas P F	16 Kentucky P F	17 Louisiana P F	18 Maine P F	19 Maryland P F	20 Massachusetts P F	21 Michigan P F	22 Minnesota P F	Marginal Number
	TEXAS																							
61	Baylor University College of Medicine	.. ..	1 1	.. ..	5 0	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	.. ..	1 0	.. ..	.. ..	1 0	.. ..	1 0	.. ..	1 0	.. ..	1 0	61
62	University of Texas School of Medicine	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	3 0	62
	VERMONT																							
63	University of Vermont College of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	.. ..	2 0	.. ..	.. ..	63
	VIRGINIA																							
64	Medical College of Virginia	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	3 1	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	2 0	64
65	University of Virginia Department of Medicine	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	1 0	2 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	3 1	.. ..	.. ..	65
	WISCONSIN																							
66	Marquette University School of Medicine	.. ..	.. ..	.. ..	3 1	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	2 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	3 0	4 0	66
67	University of Wisconsin Medical School	.. ..	1 0	.. ..	4 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	1 0	2 0	3 0	3 0	67
	CANADA																							
68	Dalhousie University Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	68
69	Laval University Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	69
70	McGill University Faculty of Medicine	.. ..	.. ..	.. ..	2 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	3 0	.. ..	.. ..	.. ..	.. ..	.. ..	7 0	1 0	6 1	1 0	1 0	70
71	Queen's University Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	1 0	.. ..	.. ..	71
72	University of Alberta Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	72
73	University of Manitoba Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 0	73
74	University of Montreal Faculty of Medicine	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	1 0	.. ..	0 1	.. ..	.. ..	74
75	University of Toronto Faculty of Medicine	.. ..	.. ..	.. ..	1 0	.. ..	1 0	.. ..	.. ..	3 1	.. ..	.. ..	3 0	.. ..	1 0	.. ..	.. ..	.. ..	.. ..	1 0	3 0	.. ..	3 0	75
76	University of Western Ontario Medical School	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	76
77	Foreign Medical Faculties	1 2	.. ..	.. ..	8 3	5 0	2 5	.. ..	.. ..	1 1	.. ..	1 0	17 2	.. ..	5 0	.. ..	.. ..	.. ..	5 0	37 26	19 13	2 0	.. ..	77
78	Extinct Medical Schools	0 1	.. ..	.. ..	0 1	.. ..	.. ..	.. ..	.. ..	6 8	.. ..	.. ..	1 1	.. ..	.. ..	.. ..	.. ..	0 1	1 0	.. ..	.. ..	1 0	1 0	78
79	Unapproved Schools and Undergraduates	.. ..	0 2	.. ..	.. ..	16 1	1 5	.. ..	.. ..	1 0	.. ..	.. ..	84 2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	89 191	.. ..	.. ..	79
80	Totals	27	35	46	387	80	106	17	33	198	89	13	477	118	103	96	84	134	53	236	510	238	192	80
81	Totals—Examined—Passed	23	26	46	369	79	76	17	32	154	89	13	471	118	103	96	84	133	53	202	271	238	191	81
82	Totals—Examined—Failed	4	9	0	18	1	30	0	1	44	0	0	6	0	0	0	0	1	0	34	239	0	1	82
83	Percentage Failed	14.8	25.7	0.0	4.7	1.2	28.3	0.0	3.0	22.2	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.7	0.0	14.4	46.9	0.0	0.5	83
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1411)

since several have been licensed in more than one state during the year. Nor does it represent additions to the medical profession at large, since the 2,745 licensed by endorsement, with the exception of those licensed in New York on the basis of foreign credentials, have migrated from other states. Table 5 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TOTAL EXAMINED

Figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state, are included in table 2. There were 6,906 examined, of whom 6,210 passed and 696 failed, representing graduates from the sixty-seven approved four year medical schools in the United States and nine in Canada, seventy-three medical schools of other countries, eighteen medical schools now extinct, ten unapproved institutions and several osteopathic colleges. Five undergraduates were examined. Osteopaths granted the privilege to practice medicine, surgery or both by the medical board are included in these statistics. There were 5,705 graduates of approved medical schools in the United States examined, of whom 4.3 per cent failed; 128 graduates of approved Canadian medical schools, 12.5 per cent of whom failed; 588 graduates of schools outside the United States and Canada with 35.4 per cent failures; 25 who graduated from schools now extinct with 48.0 per cent of failures, and 460 from unapproved and osteopathic schools, of whom 47.0 per cent failed. These 460 candidates represented 107 graduates of osteopathic schools, of whom 43 passed and 64 failed, 59.8 per cent; 348 graduates of unapproved schools, of whom 201 passed and 147, 42.2 per cent, failed and five undergraduates examined, all failed. Four of these undergraduates were permitted to be examined in Mississippi by special acts of the legislature and the fifth was examined in New York. This individual claimed graduation from a foreign medical school but his claims have not been substantiated by official correspondence. Graduates of osteopathic schools were examined in Colorado, Connecticut, Massachusetts, New Jersey, Texas and Wisconsin, while graduates of unapproved schools were examined in Arizona, Florida, Illinois, Massachusetts, Missouri, New Jersey, New Mexico, North Carolina, Ohio and Hawaii. Illinois registered eighty-four, Massachusetts seventy-seven and Ohio thirty-one practitioners of the latter group.

The 6,906 examined do not represent individuals, since a candidate might take the examination in more than one state and would be counted in each state. This applies to those who pass or fail, or those who fail and later pass in one or more states or pass in one state and later within the same year fail elsewhere. However, if a physician fails more than once in a given state within the year he is counted in that state only once as a failure.

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined twenty-eight candidates, all of whom passed. The homeopathic boards of Arkansas and Louisiana did not license any one during the year. The one eclectic board in existence in Arkansas did not examine any candidates.

The largest number of graduates of any one school examined was 193 from Northwestern University Medical School, who were examined by twenty-eight licensing boards. There were 190 graduates of Rush Medical College examined by twenty-seven boards. The next highest number of graduates of any one school was Jefferson Medical College, which had 185 graduates examined by twenty-three boards. The

| Marginal Number | Mississippi | | Missouri | | Montana | | Nebraska | | Nevada | | New Hampshire | | New Jersey | | New Mexico | | New York | | North Carolina | | North Dakota | | Ohio | | Oklahoma | | Oregon | | Pennsylvania | | Rhode Island | | South Carolina | | South Dakota | | Tennessee | | Texas | | Utah | | Vermont | | Virginia | | Washington | | West Virginia | | Wisconsin | | Wyoming | | U. S. Territories and Possessions* | | Totals | Examined—Passed | Examined—Failed | Percentage Failed | No. Boards Examined by | Marginal Number |
|---|---|---

TABLE 3.—*Candidates Licensed by Reciprocity and Endorsement—1936*

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Terr. & Poss.*	Totals	Marginal Number
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50			
	ARKANSAS																																																					
1	University of Arkansas School of Medicine	..	1	..	..	1	..	..	..	..	..	..	1	1	..	1	..	4	..	..	..	..	1	..	1	..	..	..	..	..	..	3	2	..	..	3	2	..	..	..	..	..	..	4	..	..	..	..	..	..	1	..	26	1
	CALIFORNIA																																																				
2	College of Medical Evangelists	..	7	..	3	2	..	..	2	..	1	3	1	..	2	..	2	..	..	1	..	3	1	..	..	3	1	..	2	1	2	6	2	..	2	1	4	1	..	..	..	3	1	2	..	1	8	..	1	..	..	69	2
3	Stanford University School of Medicine	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	10	3
4	University of California Medical School	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	9	4
5	University of Southern California School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	5
	COLORADO																																																			
6	University of Colorado School of Medicine	..	..	..	6	..	1	..	..	..	1	3	1	..	..	..	..	..	..	..	1	2	1	1	..	..	2	..	..	2	1	1	1	..	..	1	..	1	..	..	..	..	1	..	..	..	1	..	..	2	1	31	6
	CONNECTICUT																																																			
7	Yale University School of Medicine	..	..	..	2	1	15	..	1	..	..	..	1	1	..	..	1	..	2	1	9	..	..	..	2	..	..	..	..	1	1	1	13	..	..	..	..	..	2	..	..	..	1	..	..	..	1	..	..	1	..	..	57	7
	DISTRICT OF COLUMBIA																																																		
8	George Washington University School of Medicine	..	1	..	2	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	13	8
9	Georgetown University School of Medicine	..	..	..	2	..	1	3	10	..	..	..	..	..	..	..	1	..	..	2	1	1	..	..	..	..	..	..	..	1	..	11	..	..	..	..	..	3	1	..	1	..	..	..	..	2	..	..	..	..	..	40	9
10	Howard University College of Medicine	1	..	..	1	..	..	..	3	..	..	..	1	..	..	..	2	..	..	..	..	1	..	..	1	..	..	..	..	3	..	9	..	..	5	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	29	10
	GEORGIA																																																			
11	Emory University School of Medicine	5	1	..	1	..	1	..	1	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	2	..	..	..	3	..	..	1	..	..	2	..	2	..	..	26	11
12	University of Georgia School of Medicine	2	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..	1	..	..	..	..	1	..	2	..	..	2	..	..	..	..	..	..	..	14	12
	ILLINOIS																																																		
13	Loyola University School of Medicine	..	1	..	3	1	..	..	..	..	..	..	3	3	1	2	..	..	..	..	..	5	..	..	2	..	..	1	..	..	..	8	..	..	2	..	..	1	..	..	..	..	..	..	..	..	1	..	5	..	..	39	13
14	Northwestern University Medical School	..	..	..	7	..	..	..	..	..	..	2	6	5	2	4	..	1	1	1	..	3	1	..	2	1	1	1	..	1	3	4	2	2	2	1	..	1	..	..	1	..	3	..	..	..	..	..	6	1	..	65	14
15	University of Chicago, Rush Medical College	..	3	..	6	2	..	1	1	..	1	1	4	3	4	2	..	..	1	..	..	4	2	..	4	3	..	..	..	2	1	11	..	..	4	..	1	..	..	..	..	1	2	3	..	..	..	..	4	1	1	73	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences	..	..	..	..	2	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	9	16
17	University of Illinois College of Medicine	..	..	..	10	..	..	..	..	..	2	1	3	3	4	1	..	..	..	1	..	7	1	..	..	..	1	..	..	..	..	2	1	..	3	..	..	1	..	..	..	..	6	1	..	1	..	5	1	..	55	17
	INDIANA																																																		
18	Indiana University School of Medicine	..	..	..	5	2	..	..	2	..	..	..	3	..	2	..	..	..	..	1	..	3	..	..	3	..	..	..	..	..	4	..	6	..	..	4	1	..	1	..	..	..	..	2	..	..	1	..	1	1	..	..	42	18
	IOWA																																																		
19	State University of Iowa College of Medicine	..	1	..	7	2	..	..	..	..	..	4	6	1	..	1	..	..	..	..	..	5	..	..	2	1	3	1	..	1	..	5	..	1	2	3	2	3	..	..	1	..	1	..	..	2	3	..	3	1	..	62	19
	KANSAS																																																		
20	University of Kansas School of Medicine	1	1	..	4	2	1	..	..	..	..	1	2	..	..	..	1	..	..	..	..	1	..	..	17	..	..	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	2	..	..	..	..	..	1	1	..	39	20
	KENTUCKY																																																		
21	University of Louisville School of Medicine	3	..	..	..	2	1	..	..	..	1	1	3	2	1	..	1	1	..	..	..	4	..	..	4	2	1	..	..	1	1	1	..	..	8	1	..	1	..	..	..	2	3	1	..	2	..	2	1	..	..	51	21
	LOUISIANA																																																		
22	Louisiana State University Medical Center	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..	4	..	..	..	1	..	..	..	12	22
23	Tulane University of Louisiana School of Medicine	4	1	3	4	..	..	..	2	..	1	..	3	..	..	..	2	4	..	..	..	..	..	..	3	..	..	..	..	1	1	3	1	..	3	2	..	2	..	..	..	6	16	..	..	1	1	..	1	..	1	66	23
	MARYLAND																																																		
24	Johns Hopkins University School of Medicine	..	..	1	5	1	2	..	..	..	..	..	2	..	1	..	1	..	1	3	3	1	1	..	1	2	..	..	..	3	..	19	..	..	6	1	..	7	1	..	..	1	2	..	..	4	1	..	..	..	..	70	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons	..	..	..	1	..	1	..	4	..	..	..	1	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	1	..	3	1	8	1	..	..	..	..	3	..	..	..	1	..	..	..	4	..	4	2	..	..	38	25
	MASSACHUSETTS																																																		
26	Boston University School of Medicine	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	6	..	..	..	..	..	..	..	..	1	1	..	5	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	19	26
27	Harvard University Medical School	..	..	..	2	3	6	1	1	..	1	..	7	1	1	..	1	..	2	..	28	2	1	..	3	..	..	3	2	1	2	17	..	..	5	1	2	6	6	..	1	..	2	..	1	2	3	2	..	..	..	116	27
28	Tufts College Medical School	..	1	..	2	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..	..	..	..	..	..	..	..	2	2	5	..	..	..	..	1	..	2	..	..	..	1	..	2	..	..	..	..	..	1	37	28
	MICHIGAN																																																		
29	University of Michigan Medical School	1	2	1	7	..	..	..	..	..	1	1	1	2	1	..	1	..	..	..	1	1	1	..	..	1	1	1	..	5	1	2	2	..	11	..	..	3	..	..	1	1	3	..	..	1	..	1	4	..	..	59	29
30	Wayne University College of Medicine	..	..	..	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	30
	MINNESOTA																																																		
31	University of Minnesota Medical School	2	2	..	7	..	..	..	..	..	..	1	5	..	6	..	..	1	..	..	..	..	5	..	1	9	2	..	..	1	..	3	..	3	1	..	1	2	..	..	..	..	1	..	..	..	1	..	9	..	1	64	31
	MISSOURI																																																		
32	St. Louis University School of Medicine	1	..	..	8	..	..	..	..	..	..	2	15	..	..	2	..	1	..	..	..	5	1	..	1	1	2	..	..	4	1	2	..	2	22	1	..	1	..	..	..	..	3	1	..	..	1	..	..	..	..	77	32
33	Washington University School of Medicine	2	1	3	5	3	..	..	1	..	..	1	8	2	2	4	2	..	..	..	1	5	1	1	4	..	1	..	..	..	..	2	1	..	7	5	..	1	..	..	..	2	4	1	..	3	..	3	3	..	..	79	33

* Including Canal Zone, Hawaii, Philippine Islands, Porto Rico, Virgin Islands, Alaska, Guam, Samoa.

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TABLE 4.—*Credentials Presented by Physicians for Licensure by Reciprocity and Endorsement—1936*

Marginal Number.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Govt Services	National Board of Medical Examiners	Hawaii, Puerto Rico	Canadian & Foreign	Miscellaneous
Alabama.....	48	..	..	..	..	..	..	..	..	..	7	..	1	..	..	1	2	6	..	..	..	1	1	3	3	..	1	..	..	..	..	..	..	..	..	..	3	..	1	..	14	1	..	..	1	..	..	..	..	..	2	..	..	..
Arizona.....	41	..	..	2	5	..	..	..	1	..	1	..	5	..	1	1	..	1	..	..	..	1	1	..	..	1	..	..	..	..	..	2	..	..	1	3	1	..	1	..	2	..	..	2	..	..	..	..	..	..	8	..	..	..
Arkansas.....	13	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	2	..	..	..
California.....	197	..	1	..	..	6	..	1	..	1	1	..	21	1	8	7	..	5	1	4	3	9	8	..	9	..	10	1	..	..	..	18	..	4	7	3	7	8	..	..	..	4	6	3	..	1	5	..	1	..	15	16	2	..	..
Colorado.....	40	..	..	1	1	..	1	..	..	..	..	..	3	2	3	3	2	1	..	1	..	1	..	..	3	..	4	..	..	..	..	1	..	..	1	5	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	5	..	..	..
Connecticut.....	62	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	1	..	1	..	..	..	..	..	..	..	..	11	..	..	1	..	..	2	..	..	..	..	1	..	..	2	..	..	..	..	39	..	..	1
Delaware.....	8	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Dist. Columbia..	44	1	..	..	..	..	1	..	..	..	1	..	..	2	..	1	..	3	1	8	..	..	..	..	2	..	..	..	..	1	..	1	1	..	2	..	..	7	..	..	..	..	..	..	..	4	..	..	..	..	8	..	..	..
Florida.....	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia.....	21	..	..	1	..	1	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	1	..	..	2	..	2	1	3	..	..	..	2	..	..	..	..	2	..	..	..
Idaho.....	30	..	..	..	1	2	..	..	..	..	..	..	2	..	4	1	1	..	..	..	..	2	1	..	3	..	1	..	..	..	..	..	..	..	1	..	3	..	..	..	1	1	..	2	..	..	3	..	..	1	..	..	..	..
Illinois.....	108	..	..	1	3	..	..	..	..	..	1	..	..	6	7	3	2	3	1	3	..	2	4	..	25	..	3	..	1	..	..	..	..	..	5	1	1	3	..	..	..	1	..	2	..	..	..	5	1	1	23	..	..	..
Indiana.....	43	..	..	1	..	..	..	..	..	..	1	..	10	..	1	1	2	..	..	1	..	5	..	..	2	..	..	..	..	1	..	..	..	..	9	..	..	1	..	..	..	1	..	1	..	..	..	..	1	..	5	..	..	..
Iowa.....	43	..	..	..	3	..	..	..	..	..	1	..	7	2	..	..	2	..	1	..	..	1	6	..	3	1	6	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..
Kansas.....	30	..	..	1	..	..	..	..	..	..	..	..	6	..	1	..	..	1	..	..	..	1	..	1	6	..	1	..	..	..	..	..	..	..	3	3	..	..	..	..	..	..	1	..	..	..	..	..	1	2	..	2	..	..
Kentucky.....	45	1	..	..	1	..	..	..	..	..	1	..	1	..	1	1	..	2	..	1	1	2	..	..	4	..	..	..	..	..	..	..	..	..	9	..	..	..	..	..	..	13	..	..	..	1	..	..	..	..	6	..	..	..
Louisiana.....	19	1	..	4	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	1	..	..	..	..	..	..	..	..
Maine.....	10	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	2	..	..	..
Maryland.....	25	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	2	..	..	2	..	1	..	1	..	..	..	3	..	..	..	..	7	..	..	..
Massachusetts...	79	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	..	..	..
Michigan.....	82	1	..	..	3	1	..	..	..	..	1	..	25	4	5	2	3	..	1	1	1	..	..	..	9	..	1	..	..	1	..	1	..	..	9	..	..	6	..	..	..	1	1	..	..	..	..	..	5	..	..	..	..
Minnesota.....	27	..	..	1	..	1	..	..	..	..	..	..	4	..	1	..	..	2	..	..	..	..	..	..	2	..	2	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	9	..	..	..
Mississippi.....	14	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	2	..	..	..
Missouri.....	70	..	..	..	1	..	..	..	..	..	1	..	5	3	2	18	5	1	..	2	..	1	1	..	..	..	3	..	..	1	..	1	..	..	2	1	..	1	..	..	..	5	3	..	..	..	..	1	..	..	12	..	..	..
Montana.....	32	..	..	..	4	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	2	9	..	1	..	2	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	5	..	..	..
Nebraska.....	21	..	..	..	..	2	..	..	..	..	..	..	2	..	3	2	1	1	..	..	..	1	..	..	4	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..	..	..
Nevada.....	13	..	..	..	4	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	2	..	..	..
New Hampshire..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	7	..	..	..
New Jersey.....	129	..	..	..	..	3	..	..	..	..	..	..	1	4	1	3	2	1	..	8	1	5	1	..	4	..	1	..	..	..	..	51	..	..	4	..	..	14	..	2	..	6	..	..	..	2	2	..	1	1	..	..	11	..	..	..
New Mexico.....	47	..	..	2	1	3	..	..	..	..	..	..	4	..	1	..	2	3	..	..	..	..	..	..	2	..	2	..	..	..	..	5	1	..	2	1	..	2	..	..	1	3	9	..	..	..	..	..	..	..	3	..	..	..
New York.....	585	..	..	1	12	1	1	..	1	..	2	..	6	8	7	..	..	..	1	55	4	2	4	..	2	..	1	..	..	32	..	..	1	..	36	..	..	8	..	..	..	18	8	..	1	12	..	..	1	1	140	3	216	..
North Carolina..	45	..	..	..	2	1	..	..	..	..	2	..	2	..	..	..	..	1	1	2	..	1	1	..	1	..	..	..	..	..	..	2	..	..	1	..	..	..	..	7	..	4	..	..	..	11	..	..	..	..	6	..	..	..
North Dakota...	9	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Ohio.....	140	..	..	3	..	..	..	..	..	..	2	..	8	4	2	..	8	3	..	10	..	17	..	1	27	..	4	..	..	1	..	4	2	..	..	..	..	11	..	1	..	6	..	..	2	6	..	1	1	..	16	..	..	..
Oklahoma.....	37	1	..	2	1	1	..	..	..	..	1	..	1	1	3	2	1	2	1	1	..	..	1	..	4	..	1	..	..	..	..	1	..	..	2	..	..	..	..	..	..	4	4	..	..	..	..	..	..	1	1	..	..	..
Oregon.....	22	..	..	..	5	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	10	..	..	..
Pennsylvania....	90	..	..	..	2	..	2	..	..	..	..	..	3	1	3	..	1	1	..	9	1	6	1	..	1	..	..	..	1	9	..	4	3	..	2	..	..	..	1	..	..	..	1	..	1	2	1	1	1	..	..	32	..	..	..
Rhode Island....	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..
South Carolina..	9	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
South Dakota...	6	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..
Tennessee.....	34	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	2	4	..	3	..	1	..	2	2	..	..	..	..	..	..	1	..	..	1	1	..	..	..	3	..	..	2	..	..	2	..	..	..	..	6	..	..	..
Texas.....	115	2	..	4	1	2	1	..	..	..	3	..	13	2	3	3	4	18	..	2	1	5	2	2	8	1	2	..	..	1	..	4	1	..	3	7	..	1	..	..	1	13	..	..	..	1	1	..	1	..	2	..	..	..
Utah.....	12	1	..	..	2	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Vermont.....	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..
Virginia.....	53	..	..	..	1	..	..	..	3	..	2	..	..	1	3	..	2	1	..	8	2	1	..	..	3	..	1	..	..	..	..	1	1	..	2	1	..	2	..	..	..	6	1	..	..	..	..	..	..	2	7	..	..	..
Washington.....	45	..	..	..	3	1	..	..	..	..	..	..	..	..	4	..	..	2	..	1	..	..	1	..	1	2	4	..	..	..	..	..	..	..	..	1	6	..	..	..	..	2	..	..	..	3	..	..	1	..	13	..	..	..
West Virginia....	29	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	3	..	..	3	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	1	..	5	..	..	..	1	..	..	..	5	..	..	2	..	4	..	..	..
Wisconsin.....	62	..	..	..	3	..	1	..	..	..	..	..	17	1	3	1	..	1	..	..	1	6	14	..	3	..	1	..	..	..	..	3	..	..	1	..	..	3	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..
Wyoming.....	15	..	..	1	..	2	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..
U. S. Terr. and Possessions*...	13	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	3
Totals.....	2,702	10	1	26	60	27	7	1	6	1	38	0	162	44	74	51	51	70	12	127	24	76	60	13	146	4	56	2	2	47	2	122	13	7	115	27	17	90	1	20	6	121	45	11	9	63	12	7	26	4	21	540	5	216	4
Marginal Number.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

* Alaska, Canal Zone, Hawaii, Puerto Rico, Virgin Islands.

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date of filing an application for a California license and the date of the original license), Connecticut, Illinois, Maryland, Minnesota, Nevada, North Carolina, South Dakota and Washington require a practical or oral examination of reciprocity or endorsement applicants before a license is granted by this method. Applicants in Idaho are required to pass either a written or an oral examination in medical jurisprudence as pertaining to practice in that state. Those desiring licenses in Arizona, Arkansas, Connecticut, the District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure.

Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state. Massachusetts and Rhode Island, however, will register diplomates of the National Board of Medical Examiners by endorsement. Rhode Island requires such diplomates to pass an oral examination.

New York granted the greatest number of licenses by endorsement in 1936 (585), California was second with 197, Ohio third with 140, New Jersey fourth with 129, Texas fifth with 115 and Illinois sixth with 108. All other states licensed fewer than 100. The largest group representing the same type of credentials were the 540 diplomates of the National Board of Medical Examiners; the next greatest number (216) were from Canadian and foreign countries; Illinois was third with 162, Missouri fourth with 146, and Maryland fifth with 127. Only 122 New York licenses were endorsed during the year, while 585 were licensed in New York on the basis of credentials. Of the latter, 216 were registered on the basis of Canadian and foreign licenses or diplomas giving the right to practice in the country in which issued. However, at a meeting of the New York State Board of Regents, Sept. 21, 1936, it was voted that on applications filed after October 15 no license issued by a legally constituted board of examiners in any foreign country will be endorsed until the applicant shall pass the licensing examination prescribed by law or regents' rule.

Nine physicians were licensed on the basis of Canadian provincial credentials, all in New York. Credentials were presented from Alberta, British Columbia and Nova Scotia, one each, and six were from Ontario. New York was the only state in which physicians were registered by endorsement of European credentials. There were 207 so licensed, representing the following countries: Australia one, Austria eleven, Belgium one, Dominican Republic one, England one, France one, Great Britain one, Germany 182, Holland one, Hungary two, Italy two, Russia two and Switzerland one. Two physicians were registered in California by the endorsement of certificates from Hawaii and three in New York on the basis of licenses issued in Puerto Rico.

Not included in the table are forty-three osteopaths licensed by the board of medical examiners in three states; namely, thirty-four granted the right to practice medicine and surgery in Texas, five licensed to practice osteopathy and surgery in Wisconsin, and four also licensed to practice osteopathy and surgery in Wyoming.

Diplomates of the National Board of Medical Examiners were registered in forty-one states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

Missouri licentiates (146) were registered in thirty-four states, while the state that had the highest number of its licenses endorsed, Illinois had its 162 licentiates registered in thirty-three states, twenty-five of whom went to Michigan, twenty-one to California, seventeen to Wisconsin and thirteen to Texas. Maryland had the greatest number of its licentiates registered in any one state, fifty-five, who were given the right to practice in New York; fifty-one licentiates of New York went to New Jersey; Arizona, Connecticut, Delaware, District of Columbia, Florida, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Rhode Island,

TABLE 5.—*Licentiates Representing Additions to the Medical Profession—1936*

	Examination	Endorsement	Total
Alabama	21	2	23
Arizona	12	4	16
Arkansas	45	1	46
California	330	9	339
Colorado	75	5	80
Connecticut	61	26	87
Delaware	9	3	12
District of Columbia	24	4	28
Florida	27	0	27
Georgia	86	1	87
Idaho	6	0	6
Illinois	443	20	463
Indiana	119	1	120
Iowa	82	3	85
Kansas	90	2	92
Kentucky	92	4	96
Louisiana	136	0	136
Maine	41	2	43
Maryland	246	5	251
Massachusetts	205	63	268
Michigan	196	0	196
Minnesota	133	6	139
Mississippi	21	0	21
Missouri	202	7	209
Montana	10	1	11
Nebraska	75	1	76
Nevada	0	1	1
New Hampshire	22	3	25
New Jersey	149	5	154
New Mexico	3	1	4
New York	876	324	1,200
North Carolina	61	6	67
North Dakota	4	2	6
Ohio	316	14	330
Oklahoma	56	0	56
Oregon	46	2	48
Pennsylvania	472	24	496
Rhode Island	19	8	27
South Carolina	30	0	30
South Dakota	4	1	5
Tennessee	184	4	188
Texas	173	35	208
Utah	22	1	23
Vermont	22	0	22
Virginia	105	1	106
Washington	42	10	52
West Virginia	33	3	36
Wisconsin	100	3	103
Wyoming	0	3	3
U. S. Territory and Possession*	12	7	19
Totals	5,538	628	6,166
Totals for 1935	5,096	411	5,507

* Hawaii, Puerto Rico.

South Dakota, Vermont, West Virginia, Wyoming, Hawaii and Puerto Rico had less than ten of their licentiates endorsed to other states and Idaho had none.

A total of 2,702 physicians secured licenses by this method during 1936.

In table 3, the 2,702 physicans licensed by reciprocity and endorsement and, in addition, forty-three osteopaths so licensed, are recorded by school of graduation and state or territory where licensed. All the existing United States four-year medical schools and eight medical schools of Canada were represented. The largest number of graduates of any one school were from Harvard University Medical School, 116; Washington University School of Medicine had 79 licensed by this method; St. Louis University School of Medicine 77, Rush Medical College 73 and Johns Hopkins

• Alaska, Canal Zone, Hawaii, Puerto Rico, Virgin Islands.

University School of Medicine had 70. Graduates of 44 foreign medical faculties and five licensing corporations of England and Scotland, 36 extinct medical schools and four unapproved institutions, and several

TABLE 6.—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions—1936*

	Examination	Endorsement	Total
New England			
Maine	41	2	43
New Hampshire	22	3	25
Vermont	22	0	22
Massachusetts	205	63	268
Rhode Island	19	8	27
Connecticut	61	26	87
	370	102	472
Middle Atlantic			
New York	876	324	1,200
New Jersey	149	5	154
Pennsylvania	472	24	496
	1,497	353	1,850
East North Central			
Ohio	316	14	330
Indiana	119	1	120
Illinois	443	20	463
Michigan	196	0	196
Wisconsin	100	3	103
	1,174	38	1,212
West North Central			
Minnesota	133	6	139
Iowa	82	3	85
Missouri	202	7	209
North Dakota	4	2	6
South Dakota	4	1	5
Nebraska	75	1	76
Kansas	90	2	92
	590	22	612
South Atlantic			
Delaware	9	3	12
Maryland	246	5	251
District of Columbia	24	4	28
Virginia	105	1	106
West Virginia	33	3	36
North Carolina	61	6	67
South Carolina	30	0	30
Georgia	86	1	87
Florida	27	0	27
	621	23	644
East South Central			
Kentucky	92	4	96
Tennessee	184	4	188
Alabama	21	2	23
Mississippi	21	0	21
	318	10	328
West South Central			
Arkansas	45	1	46
Louisiana	136	0	136
Oklahoma	56	0	56
Texas	173	35	208
	410	36	446
Mountain			
Montana	10	1	11
Idaho	6	0	6
Wyoming	0	3	3
Colorado	75	5	80
New Mexico	3	1	4
Arizona	12	4	16
Utah	22	1	23
Nevada	0	1	1
	128	16	144
Pacific			
Washington	42	10	52
Oregon	46	2	48
California	330	9	339
	418	21	439
Territory and Possession			
Hawaii	4	6	10
Puerto Rico	8	1	9
	12	7	19
Totals	5,358	628	6,166

osteopathic schools were licensed without examination. Thirty-four osteopaths were granted the right to practice medicine and surgery in Texas and five and four, respectively, permitted the privilege of practicing surgery in Wisconsin and Wyoming. There were 264 graduates of foreign medical faculties registered, 84 from extinct medical schools and 62 graduates of unapproved schools.

CANDIDATES ADDED TO THE PROFESSION

The number of licentiates added to the profession during 1936 are given in table 5. The figures represent candidates examined in 1936 and licensed; also those examined in previous years whose licenses were withheld and issued in 1936, those certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials, and miscellaneous. In the main they represent recent graduates. Altogether, 6,166 were added to the profession, as contrasted with approximately 4,000, the number removed by death in 1936. These figures indicate that at least 1,500 have been added to the already overcrowded medical profession. It is assumed that by far the great majority of those licensed are in practice. It is interesting to note that, of 9,008 licenses issued throughout the year, 6,166, 68.5 per cent, are actual additions to the medical profession.

TABLE 7.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Rhode Island
Arkansas	Michigan	South Carolina
Colorado	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	Pennsylvania
High School Graduation or its Equivalent		
Delaware	Missouri	Ohio
Massachusetts	Nebraska	

The largest number added to the profession was in New York, 1,200; Pennsylvania added 496 and Illinois 463, while Nevada added one. Of the number of licentiates representing additions to the medical profession during 1936, 5,538 secured this privilege by examination and 628 by the endorsement of credentials, the greatest majority of which (324) were licensed in New York State and represent graduates of foreign medical schools licensed on the basis of their credentials and diplomates of the National Board of Medical Examiners. In 1935 there were 5,096 added by means of examination and 411 by endorsement of credentials, a total of 5,507. In 1936 there were 659 more added than in 1935. No additions were made to the physician population of Alaska, Canal Zone or the Virgin Islands, while nineteen were added in Hawaii and Puerto Rico.

Table 6 records the licentiates representing additions to the medical profession, by sections of the country. The largest number (1,850) was added to the Middle Atlantic group and the fewest number to the Mountain division, 144.

STATE REQUIREMENTS OF PRELIMINARY TRAINING

The minimum requirement of preliminary education exacted by the Council on Medical Education and Hospitals since 1918 has been two years of college work. There are still eight states, however, which have not

revised or amended their statutes to conform with this prerequisite, although these states with possibly one or two exceptions do not license other than graduates of approved schools. Table 7 records the premedical training required in each state.

REQUIRED HOSPITAL INTERNSHIPS

In tables 8 and 9 are listed the medical schools and state licensing boards now requiring internships for the M.D. degree and state licensure respectively. Some

TABLE 8.—*Internship Required by Medical Schools*

United States	Effective Date
College of Medical Evangelists	1927
Stanford University School of Medicine	1919
University of California Medical School	1919
University of Southern California School of Medicine	1933
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine*	1932
University of Cincinnati College of Medicine	1926
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

* Requires a two-year internship.

medical schools will accept research or other clinical work in lieu of the internship. The effective date of the requirement is shown in both tables. Thirteen schools in the United States and four in Canada exact the internship requisite. The M.D. degree has been conditioned on an internship at the University of Minnesota Medical School since 1915. Rush Medical College, which has required the internship for the M.D. degree since 1919 and the School of Medicine of the Division of the Biological Sciences, University of Chicago, discontinued this requirement in 1936.

As revealed in table 9, seventeen states, Alaska and the District of Columbia require that applicants for licensure possess a hospital internship. The first state exacting the internship was Pennsylvania in 1914 and the last one Vermont, affecting the graduates of 1934 and thereafter.

While some of the medical schools and licensing boards may have their own list of hospitals recommended for intern training, generally the Council's list of hospitals approved for internships is followed.

TABLE 9.—*Internship Required by Medical Licensing Boards*

	Effective Date		Effective Date
Alaska	1917	Pennsylvania	1914
Delaware	1924	Rhode Island	1917
District of Columbia	1930	South Dakota	1925
Illinois	1923	Utah	1926
Iowa	1924	Vermont	1934
Michigan	1922	Washington	1919
New Jersey	1916	West Virginia	1932
North Dakota	1918	Wisconsin	1927
Oklahoma	1933	Wyoming	1931
Oregon	1933		

CANDIDATES EXAMINED FROM 1932 TO 1936 INCLUSIVE

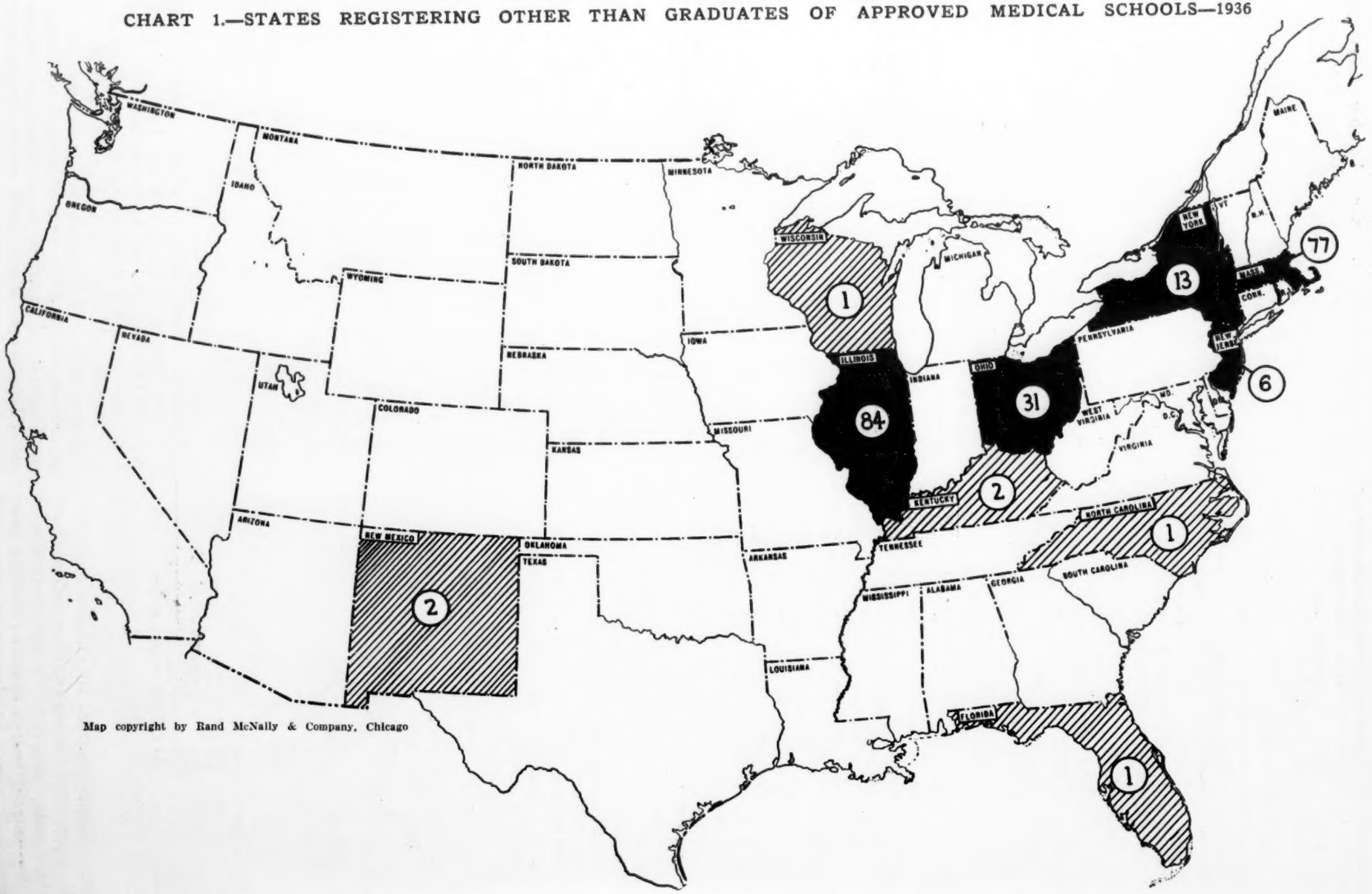
In table 10 are listed the number of candidates examined in the various states, territories and possessions in the last five years, 1932-1936 inclusive, showing those who passed and failed. In this period New York passed 4,109 candidates, Pennsylvania 2,385, Illinois 1,991, California 1,584, Ohio 1,423, Michigan 1,119 and Massachusetts 1,101. All other states passed less than 1,000. Eleven states passed less than 100 and New Mexico and Wyoming only nine. The percentage of candidates who failed in the examinations in the past five years is given in the last column. The proportion of failures in all states has increased from 7.6 per cent in 1932 to 10.1 per cent in 1936. In the five year period, 46.5 per cent of the applicants failed in Massachusetts. The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of

TABLE 10.—*Candidates Examined—1932-1936, Inclusive*

	1932		1933		1934		1935		1936		Totals for 5 Years		
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Percentage Failed
Alabama	14	0	11	0	20	0	37	0	23	4	105	4	3.7
Arizona	14	2	9	1	7	2	8	2	26	9	64	16	20.0
Arkansas	43	0	44	1	53	0	42	0	46	0	228	1	0.4
California	290	15	294	13	303	16	328	14	369	18	1,584	76	4.6
Colorado	59	3	60	0	66	2	59	1	79	1	323	7	2.1
Connecticut	68	12	63	15	70	12	63	13	76	30	340	82	19.4
Delaware	6	0	18	1	14	7	13	5	17	0	68	13	16.0
Dist. of Columbia	43	1	39	1	50	1	43	1	32	1	207	5	2.4
Florida	66	6	80	3	105	27	135	24	154	44	540	104	16.2
Georgia	100	0	88	1	80	0	88	2	89	0	445	3	0.7
Idaho	5	0	5	0	13	0	7	1	13	0	43	1	2.3
Illinois	360	28	369	14	368	13	423	10	471	6	1,991	71	3.4
Indiana	110	1	114	6	143	4	115	4	118	0	600	15	2.4
Iowa	115	0	110	1	100	0	77	1	103	0	505	2	0.4
Kansas	76	0	80	0	98	0	95	0	96	0	445	0	0.0
Kentucky	69	0	70	0	80	2	81	0	84	0	384	2	0.5
Louisiana	111	3	119	0	122	0	134	0	133	1	619	4	0.6
Maine	30	0	35	0	35	0	45	1	53	0	198	1	0.5
Maryland	176	5	165	2	204	17	194	28	202	34	941	86	8.4
Massachusetts	208	132	189	177	236	170	197	239	271	239	1,101	957	46.5
Michigan	219	0	194	0	225	2	243	2	238	0	1,119	4	0.4
Minnesota	142	0	126	1	159	0	173	0	191	1	791	2	0.3
Mississippi	27	0	24	0	28	1	30	1	22	4	131	6	4.4
Missouri	156	0	215	0	186	2	214	8	202	3	973	13	1.3
Montana	8	0	8	0	9	0	8	0	15	0	48	0	0.0
Nebraska	67	0	66	0	86	0	90	0	75	0	384	0	0.0
Nevada	4	1	1	1	5	0	3	1	0	0	13	3	18.8
New Hampshire	9	0	10	0	6	0	4	0	22	0	51	0	0.0
New Jersey	113	7	153	9	175	10	182	5	168	6	791	37	4.5
New Mexico	4	0	0	0	1	0	1	0	3	0	9	0	0.0
New York	717	179	747	146	834	193	879	195	932	249	4,109	962	19.0
North Carolina	87	1	65	0	75	0	64	0	64	0	355	1	0.3
North Dakota	21	0	14	2	12	1	14	1	14	0	75	4	5.1
Ohio	270	10	285	7	261	6	295	3	312	2	1,423	28	1.9
Oklahoma	60	0	66	0	73	0	62	0	70	0	331	0	0.0
Oregon	31	1	39	0	28	0	55	0	47	0	200	1	0.5
Pennsylvania	458	8	456	12	466	10	464	6	541	1	2,385	37	1.5
Rhode Island	40	1	38	3	34	3	53	4	22	7	187	18	8.8
South Carolina	40	0	38	0	46	0	49	0	32	0	205	0	0.0
South Dakota	12	0	14	0	10	0	20	0	15	0	71	0	0.0
Tennessee	190	1	141	0	173	0	181	1	178	1	863	3	0.4
Texas	147	0	166	0	165	2	188	4	176	21	842	27	3.1
Utah	24	0	9	0	20	0	20	1	23	0	96	1	1.0
Vermont	23	0	27	0	30	0	26	0	38	0	144	0	0.0
Virginia	115	3	146	1	130	4	105	1	106	0	602	9	1.5
Washington	42	0	41	0	45	0	44	0	58	1	230	1	0.4
West Virginia	27	1	30	2	25	0	38	0	59	0	179	3	1.6
Wisconsin	116	3	115	5	118	4	111	0	110	1	570	13	2.2
Wyoming	2	0	2	0	1	1	3	0	1	0	9	1	10.0
U. S. Territories and Possessions	104	4	38	4	29	4	40	6	21	12	232	30	11.5
Totals	5,666		5,665		6,138		6,428		6,906		30,803		
Totals—Examined													
Passed	5,238		5,236		5,622		5,843		6,210		28,149		
Failed	428		429		516		585		696		2,654		
Percentage Failed	7.6		7.6		8.4		9.1		10.1		8.6		

unapproved schools, many of whom repeatedly fail. A bill was passed in Massachusetts in 1936 giving the board of medical examiners approving authority. The board members are planning to visit the medical schools of Massachusetts and, together with questionnaires similar to those used by the Council in its recent survey of medical schools, plans to establish a list of recognized schools. The effect of the amendment to the medical practice act, however, will not be felt until after 1940, when it goes into effect.

CHART 1.—STATES REGISTERING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1936



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The states in black registered more than 5 such candidates, those shaded, 5 or less.

The fourth highest proportion of failures was in New York, with 19 per cent. The comparatively high percentage in this state is occasioned by the fact that New York admits a great many graduates of foreign medical schools to its licensing examination. Arizona had 20 per cent failures, the second highest, Connecticut 19.4 per cent, Nevada 18.8 per cent, Florida 16.2 per cent and Delaware 16 per cent. Florida has no reciprocal relations with any state, all candidates applying being required to take the licensing examination. Graduates of earlier years, it appears, experience difficulty in passing examinations. On the other hand, Kansas, Montana, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota and Vermont—nine states—had no failures. Alabama, Arkansas, California, Colorado, the District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wisconsin—twenty-nine states—had less than 5 per cent of failures. A total of 30,803 candidates were examined in the five years from 1932 to 1936 inclusive, of whom 28,149 passed and 2,654 failed, 8.6 per cent. These figures represent examinations given and not individuals. A candidate who fails more than once in a given year has not been counted twice, but should he fail in one of the succeeding years in another state he is counted in that state also. Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as passed and failed. With a total of 2,654 failures for the five year period, it seems likely that there were approximately 27,500 individuals examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state. This figure gives a fair estimate of the number of physicians added to the profession each year. Table 5 gives exact totals on this point for the years 1935 and 1936. From this table it can be seen that there has been a gradual increase in the number of physicians examined.

TABLE 11.—*Registration—1904-1936*

Year	All Candidates Examined: Passed	All Candidates Examined: Percentage Failed	Registered Without Written Examination	Total Registered
1904	5,676	19.4	999	6,675
1905	5,693	20.7	394	6,087
1906	6,369	20.7	1,499	7,868
1907	5,731	21.3	1,427	7,158
1908	6,087	21.7	1,281	7,368
1909	5,863	19.6	1,375	7,238
1910	5,717	18.4	1,640	7,357
1911	5,583	19.8	1,243	6,826
1912	5,467	20.5	1,271	6,738
1913	5,250	18.6	1,291	6,541
1914	4,378	21.5	1,438	5,816
1915	4,507	15.5	1,394	5,901
1916	4,145	14.9	1,351	5,496
1917	4,083	14.1	1,360	5,443
1918	3,180	13.2	1,047	4,227
1919	4,074	14.2	2,543	6,617
1920	4,061	15.3	2,556	6,617
1921	4,226	12.4	2,182	6,408
1922	3,538	12.2	2,066	5,604
1923	4,026	14.8	2,398	6,424
1924	4,753	11.8	1,912	6,665
1925	5,445	9.2	1,852	7,297
1926	5,309	7.9	1,940	7,249
1927	4,995	7.2	2,172	7,167
1928	5,084	6.8	2,227	7,311
1929	5,279	6.2	2,417	7,696
1930	5,247	5.7	2,363	7,610
1931	5,260	6.2	2,209	7,469
1932	5,238	7.6	1,876	7,114
1933	5,236	7.6	1,971	7,207
1934	5,622	8.4	2,144	7,766
1935	5,843	9.1	2,192	8,035
1936	6,210	10.1	2,745	8,955

REGISTRATION 1904-1936

A study of totals and percentages (table 11) for each year beginning with 1904 is of interest. The number (6,210) who passed in 1936 was 367 more than the number who passed in 1935 and only 534 more than in 1904. The number licensed without examination, 2,745, was 553 more than in 1935. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By all methods, 8,955 were registered, 920 more than in 1935. This figure represents the largest number of candidates registered since 1904.

Of those examined 10.1 per cent failed in 1936, while 9.1 per cent failed in 1935. While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

It will be seen that there has been no constant increase or decrease in the total number of candidates registered from 1904 to 1933, although since 1906 the number licensed without examination has been increasing, owing to the universal system of endorsement and the recognition of the certificate of the National Board of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There was, however, a substantial increase in the number registered in 1934 and 1935 and a still larger increase in 1936, both by examination and by endorsement. This is probably accounted for by the fact that medical schools are graduating larger classes, 5,101 in 1935 and 5,183 in 1936. The enrolment in

TABLE 12.—*Graduates of Other Than Approved Medical Schools Registered—1933-1936*

	Examination				Reciprocity and Endorsement				
	1933	1934	1935	1936	1933	1934	1935	1936	Totals
Alabama	0	0	0	0	1	0	0	0	1
Arkansas	1	1	0	0	1	0	0	0	3
California	0	1	1	0	0	0	2	0	4
Florida	0	1	1	1	0	0	0	0	3
Idaho	0	0	0	0	0	1	0	0	1
Illinois	38	33	67	84	0	0	0	0	222
Indiana	0	0	1	0	0	0	0	0	1
Kansas	0	1	0	0	0	0	0	0	1
Kentucky	1	1	1	0	0	0	0	2	5
Massachusetts	38	54	26	77	0	0	0	0	195
Michigan	0	0	0	0	1	0	0	0	1
Mississippi	0	1	0	0	0	1	0	0	2
Missouri	1	0	0	0	0	0	2	0	3
New Jersey	0	0	0	5	1	4	0	1	11
New Mexico	0	0	0	1	1	0	2	1	5
New York	0	0	0	0	0	0	0	13	13
North Carolina	0	0	0	1	0	0	0	0	1
North Dakota	0	0	0	0	0	0	1	0	1
Ohio	0	0	16	31	0	1	0	0	48
Oklahoma	0	0	1	0	0	0	0	0	1
Rhode Island	0	0	1	0	0	0	0	0	1
South Dakota	0	0	1	0	0	0	0	0	1
Tennessee	1	0	0	0	1	0	0	0	2
Texas	0	0	0	0	0	2	0	0	2
Washington	1	0	0	0	0	0	0	0	1
Wisconsin	0	0	0	0	0	0	0	1	1
Alaska and Hawaii	1	1	0	1	0	0	0	1	4
Totals	82	94	116	201	6	9	7	19	534

(CONTINUED ON PAGE 1427)

CHART 2.—STATES REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH—1936

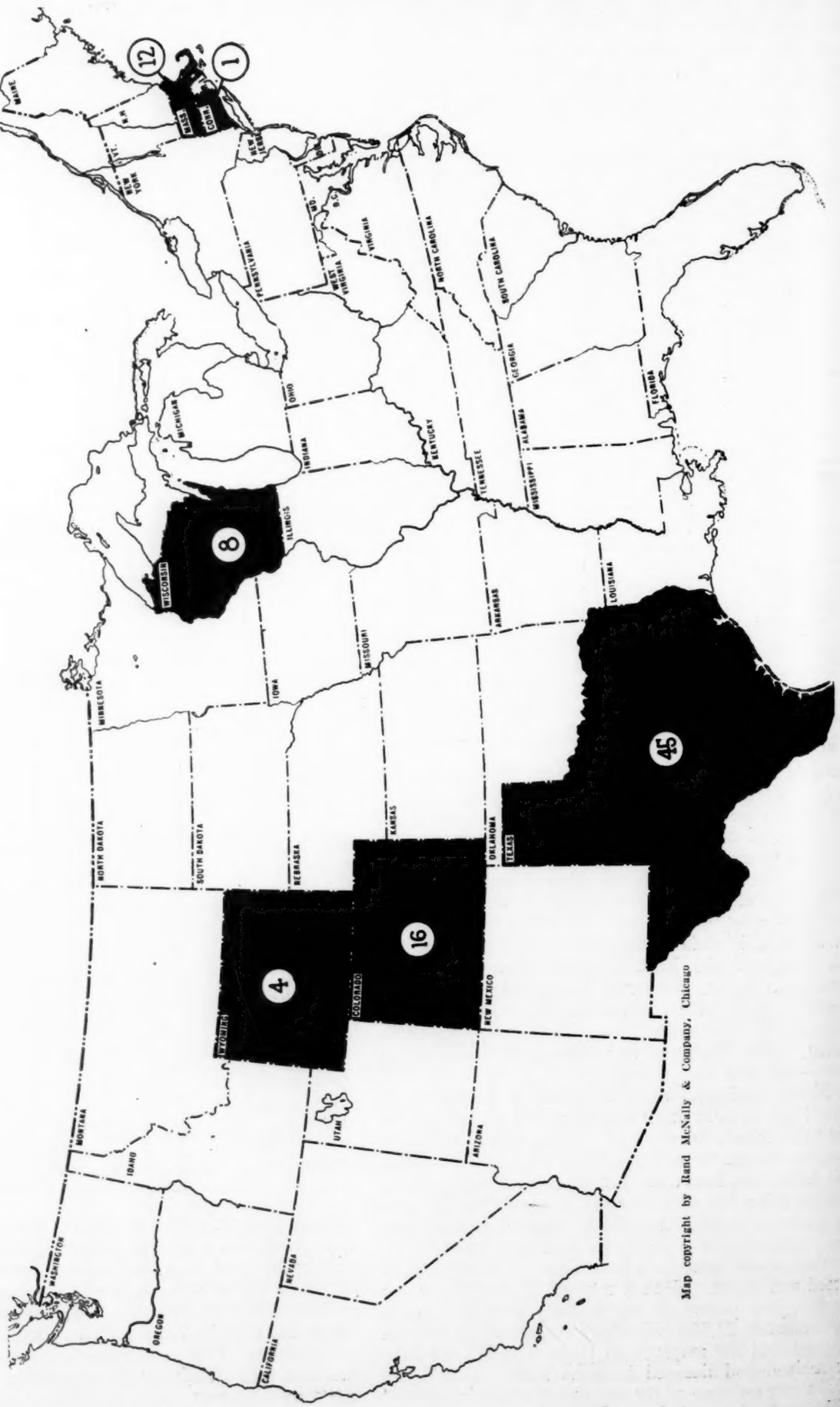

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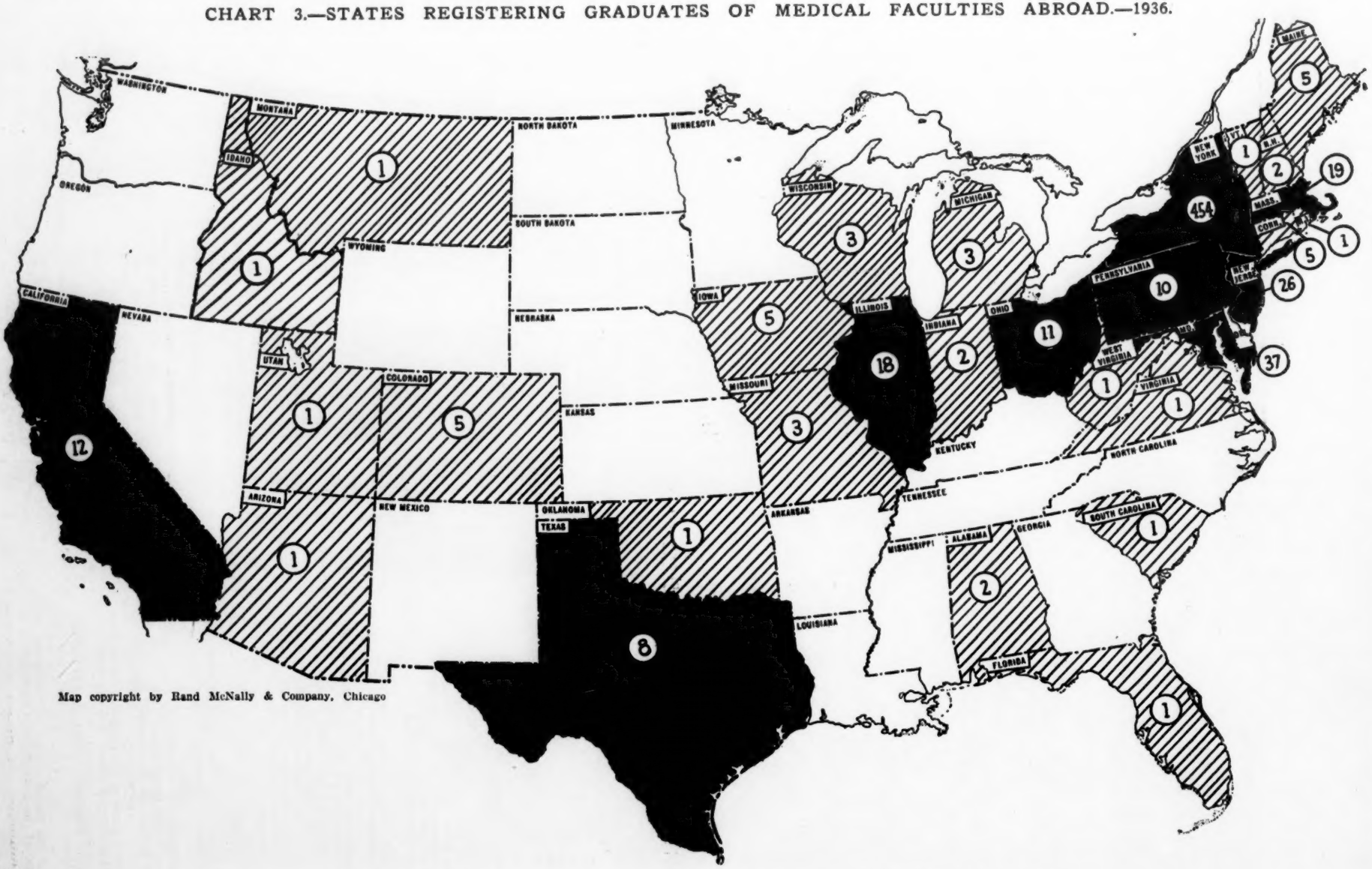
TABLE 15.—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1931-1936*

	1931-1935		1936	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA				
University of Adelaide	1	0.0	0	0.0
University of Melbourne	1	0.0	0	0.0
AUSTRIA				
Karl-Franzens-Universität, Graz	21	52.4	2	100.0
Leopold-Franzens-Universität, Innsbruck	3	33.3	1	0.0
Universität Wien	89	31.5	51	29.4
BELGIUM				
Université Catholique de Louvain	8	50.0	0	0.0
Université de Liège	2	100.0	1	100.0
Université Libre de Bruxelles	1	0.0	1	0.0
CHILE				
Universidad de Chile, Santiago	1	0.0	0	0.0
CHINA				
National College of Medicine of Shanghai	1	0.0	0	0.0
Pennsylvania Medical School, Shanghai	1	0.0	0	0.0
University of Hongkong	1	0.0	0	0.0
CHOSEN				
Severance Union Medical College, Keijo	2	100.0	0	0.0
COLOMBIA				
Universidad de Bolivar, Cartagena	1	0.0	0	0.0
CUBA				
Universidad de la Habana	18	27.8	2	100.0
CZECHOSLOVAKIA				
Deutsche Universität, Prag	20	50.0	4	25.0
Masarykova Universita, Brno	5	100.0	2	50.0
Universita Karlova, Praha	4	25.0	2	100.0
Univerzita Komenského, Bratislava	4	75.0	1	0.0
DOMINICAN REPUBLIC				
Universidad de Santo Domingo	4	25.0	0	0.0
ENGLAND				
Fellow of the Royal College of Physicians of London	0	0.0	1	0.0
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London	1	100.0	3	66.7
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	1	100.0	1	0.0
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	34	2.9	18	16.7
University of Birmingham	0	0.0	1	0.0
University of Bristol	1	0.0	0	0.0
University of Durham, Newcastle-upon-Tyne	0	0.0	7	28.6
University of London	4	50.0	3	33.3
University of Oxford	1	0.0	0	0.0
University of Sheffield	3	33.3	2	0.0
ESTONIA				
Université de Tartu	1	0.0	0	0.0
FRANCE				
Université de Bordeaux	4	50.0	0	0.0
Université de Lyon	2	0.0	1	100.0
Université de Montpellier	2	50.0	2	0.0
Université de Paris	39	38.5	18	38.9
Université de Strasbourg	5	40.0	1	0.0
Université de Toulouse	3	33.3	1	0.0
GERMANY				
Albert-Ludwigs-Universität, Freiburg	20	45.0	7	14.3
Albertus-Universität, Königsberg	3	66.7	2	50.0
Christian-Albrechts-Universität, Kiel	2	0.0	1	0.0
Eberhard-Karls-Universität, Tübingen	0	0.0	5	40.0
Ernst-Moritz-Arndt Universität Griefswald	3	33.3	0	0.0
Friedrich-Alexanders-Universität, Erlangen	5	80.0	2	50.0
Friedrich-Wilhelms-Universität, Berlin	73	35.6	47	27.7
Georg August-Universität, Göttingen	0	0.0	1	0.0
Hamburgische Universität	17	23.5	12	25.0
Hessische Ludwigs-Universität, Giessen	3	0.0	0	0.0
Johann Wolfgang Goethe-Universität, Frankfurt-am-Main	15	40.0	11	36.4
Julius-Maximilians-Universität, Würzburg	14	50.0	5	60.0
Ludwig-Maximilians-Universität, München	21	23.8	11	45.5
Medizinische Akademie Düsseldorf	1	100.0	2	0.0
Philipps-Universität, Marburg	0	0.0	1	0.0
Rheinische Friedrich-Wilhelms-Universität, Bonn	2	0.0	3	66.7
Schlesische-Friedrich-Wilhelms-Universität, Breslau	21	33.3	8	25.0
Thüringische Landesuniversitat, Jena	5	40.0	3	33.3
Universität Heidelberg	18	16.7	6	0.0
Universität Köln	10	40.0	3	0.0
Universität Leipzig	13	46.2	8	37.5
Universität Rostock	0	0.0	1	100.0
Vereinigten Friedrichs-Universität, Halle-Wittenberg	1	0.0	0	0.0
Westfälische Wilhelms-Universität, Münster	2	100.0	1	0.0
GREECE				
National University of Athens	8	87.5	3	66.7
GUATEMALA				
Universidad Nacional de Guatemala	1	100.0	0	0.0
HUNGARY				
Magyar Királyi Erzsébet Tudományegyetem, Pecs	8	62.5	0	0.0
Magyar Királyi Ferencz József Tudományegyetem, Szeged	3	33.3	1	0.0
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	25	24.0	0	0.0
IRELAND				
Licentiate of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland	4	0.0	0	0.0
IRELAND—Continued				
National University of Ireland	7	28.6	2	0.0
Queen's University, Belfast	4	25.0	0	0.0
University of Dublin	1	0.0	4	25.0
ITALY				
Regia Università di Bologna	21	47.6	11	36.4
Regia Università di Catania	2	50.0	0	0.0
Regia Università di Firenze	9	44.4	0	0.0
Regia Università di Genova	7	71.4	2	100.0
Regia Università di Milano	1	0.0	1	0.0
Regia Università di Modena	4	100.0	3	66.7
Regia Università di Napoli	119	61.3	24	66.7
Regia Università di Padova	9	55.6	6	66.7
Regia Università di Palermo	31	77.4	4	50.0
Regia Università di Pavia	3	66.7	1	0.0
Regia Università di Perugia	0	0.0	1	0.0
Regia Università di Pisa	1	0.0	0	0.0
Regia Università di Roma	84	53.6	64	54.7
Regia Università di Siena	3	33.3	0	0.0
Regia Università di Torino	2	0.0	0	0.0
JAPAN				
Keio Gijuku University, Tokyo	1	0.0	0	0.0
Tohoku Imperial University, Sendai	3	66.7	0	0.0
Tokyo Charity Association Medical College	5	40.0	0	0.0
Tokyo Special Medical School	1	100.0	0	0.0
MEXICO				
Escuela Libre de Homeopatia del Estado de Puebla	1	100.0	0	0.0
Escuela Médico Militar México, D. F.	1	0.0	2	100.0
Instituto Literario y Cientifico, San Luis Potosi	1	100.0	0	0.0
Universidad de Guadalajara	2	0.0	0	0.0
Universidad Nacional, México, D. F.	9	0.0	2	100.0
NETHERLANDS				
Rijks-Universiteit te Leiden	2	0.0	0	0.0
Universiteit van Amsterdam	3	33.3	0	0.0
NORWAY				
Kongelige Frederiks Universitet, Oslo	3	0.0	0	0.0
PERSIA				
Government Medical School, Teheran	1	100.0	0	0.0
POLAND				
Uniwersytet Jana Kazimierza, Lwów	4	50.0	2	50.0
Uniwersytet Jozefa Pilsudskiégo, Warszawa	1	0.0	0	0.0
PORTUGAL				
Universidade de Lisboa	5	60.0	0	0.0
Universidade do Porto	3	33.3	0	0.0
RUMÂNIA				
Universitatea din Bucureşti	2	50.0	0	0.0
Universitatea Regele Ferdinand I-iu din Cluj	9	66.7	0	0.0
SCOTLAND				
Licentiate of the Royal College of Physicians of Edinburgh	1	0.0	0	0.0
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh	5	0.0	1	0.0
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow	33	21.2	35	20.0
School of Medicine of the Royal Colleges, Edinburgh	5	0.0	0	0.0
University of Aberdeen	11	27.3	3	0.0
University of Edinburgh	68	8.8	10	20.0
University of Glasgow	16	0.0	7	0.0
University of St. Andrews	74	12.2	13	15.4
SOUTH AFRICA, UNION OF				
University of Cape Town	1	0.0	0	0.0
SPAIN				
Universidad Central de España, Madrid	4	25.0	0	0.0
Universidad de Barcelona	1	0.0	0	0.0
Universidad de Sevilla	1	0.0	0	0.0
SWEDEN				
Kungl. Universitetet i Uppsala	1	0.0	0	0.0
SWITZERLAND				
Universität Basel	3	33.3	21	38.1
Universität Bern	32	40.6	33	42.4
Universität Zürich	8	37.5	29	34.5
Université de Genève	19	31.6	21	23.8
Université de Lausanne	2	0.0	15	26.7
SYRIA				
American University of Beirut	7	14.3	0	0.0
Université de St. Joseph, Beyrouth	3	66.7	0	0.0
TAIWAN				
Taihoku Special Medical School	2	50.0	0	0.0
TURKEY				
University of Istanbul	1	100.0	0	0.0
UNION OF SOCIALIST SOVIET REPUBLICS				
First Leningrad Medical Institute	1	100.0	0	0.0
First Moscow Medical Institute	6	66.7	0	0.0
Irkutsk Medical Institute	1	0.0	0	0.0
Kharkov Medical Institute	6	50.0	0	0.0
Kiev Medical Institute	2	50.0	1	100.0
Saratov Medical Institute	6	83.3	0	0.0
Psycho-Neurological Institute, Petrograd	2	100.0	0	0.0
Tomsk Medical Institute	4	50.0	0	0.0
YUGOSLAVIA				
Beogradskog Universiteta	2	50.0	0	0.0
Zagrebaskog Universiteta	2	0.0	0	0.0

CHART 3.—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD.—1936.



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The states in black registered more than 5 such graduates, those shaded, 5 or less.

(CONTINUED FROM PAGE 1423)

medical schools for the college sessions 1935-1936 and 1936-1937 and subsequent years in many cases has been and will be reduced.

GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS AND OSTEOPATHS REGISTERED

In table 12 will be noted the total number of graduates of those institutions which have been classified as unapproved who were registered with or without examination in 1933, 1934, 1935 and 1936.

TABLE 13.—*Graduates of Schools of Osteopathy Registered by Medical Licensing Boards—1933-1936*

	Examination				Reciprocity and Endorsement				
	1933	1934	1935	1936	1933	1934	1935	1936	Totals
Colorado	8	10	13	16	0	0	0	0	47
Connecticut	2	1	0	1	0	0	0	0	4
District of Columbia	0	0	0	0	1	0	0	0	1
Massachusetts	15	21	5	12	0	0	0	0	53
New Jersey	0	0	2	0	0	0	0	0	2
Texas	4	7	7	11	13	17	13	34	106
Wisconsin	6	2	0	3	9	3	0	5	28
Wyoming	0	0	0	0	0	1	2	4	7
Totals	35	41	27	43	23	21	15	43	248

Ten states, Alaska and Hawaii in 1936 registered 220 graduates of unapproved medical schools, 201 by examination and nineteen without examination.

The number of unapproved graduates increased by ninety-seven the number registered in 1935. One each was licensed in Florida, North Carolina, Wisconsin, Alaska and Hawaii. The graduate licensed in Florida was required to repeat his senior year's work in an approved medical school. New Mexico permitted one such a graduate to be examined by virtue of the fact that he served in the marine service. No undergraduates were licensed, although five were examined. The thirty-one licensed by examination in Ohio, five in New Jersey by examination and one by endorsement, two in Kentucky by endorsement and thirteen in New York by endorsement are graduates of the Eclectic Medical College of Cincinnati, an unapproved institution. This school has not enrolled any new students for the present college session and plans to discontinue in 1939. The seventy-seven registered in Massachusetts represented mainly two unapproved schools located in that state and a few elsewhere. This state by law is required to admit to its examination a graduate of any chartered medical school but in 1936 amended its medical practice act giving the medical board approving authority. The new law goes into effect in 1940. Eighty-four graduates of the Chicago Medical School, an unapproved institution, were registered in Illinois by examination in 1936.

In the four year period shown, 493 graduates of unapproved schools and undergraduates were registered by examination and forty-one by reciprocity and endorsement, a total of 534.

Chart 1 indicates by shaded lines those registering fewer than six graduates of unapproved medical schools, and by a solid area those registering more than five such candidates during 1936.

In table 13 are given the total number of graduates of osteopathic schools who were registered with or without examination in 1933, 1934, 1935 and 1936.

In 1936, six states registered forty-three by examination and forty-three by endorsement of credentials. These osteopaths were registered in Colorado, Connecticut, Massachusetts, Texas, Wisconsin and Wyoming. Sixty-four osteopaths failed of registration by examination, one each in Colorado and New Jersey, five in Connecticut, eight in Texas and forty-nine in Massachusetts.

These osteopaths were granted the right to practice medicine or surgery or both, by the board of medical examiners. These facts are shown graphically in chart 2.

In the four year period 1933-1936, 248 graduates of osteopathic schools secured the privilege of practicing medicine, surgery, or both, in seven states and the District of Columbia.

In Colorado, osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for a license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four-year course of instruction of not less than thirty-two weeks in each year. As has been said, the Massachusetts statute has been amended.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital approved by the board of medical examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

TABLE 14.—*Graduates of Approved Schools and Others Registered—1922-1936*

	Graduates of Approved Schools		Others		
Date	Number	Per Cent	Number	Per Cent	Totals
1922	4,516	80.6	1,088	19.4	5,604
1923	5,193	80.8	1,231	19.2	6,424
1924	5,681	85.2	984	14.8	6,665
1925	6,306	86.4	991	13.6	7,297
1926	6,427	88.7	822	11.3	7,249
1927	6,408	89.4	759	10.6	7,167
1928	6,584	90.1	727	9.9	7,311
1929	7,000	91.0	696	9.0	7,696
1930	7,008	92.1	602	7.9	7,610
1931	6,928	92.8	541	7.2	7,469
1932	6,667	93.7	447	6.3	7,114
1933	6,753	93.7	454	6.3	7,207
1934	7,155	92.1	611	7.9	7,766
1935	7,357	91.6	678	8.4	8,035
1936	7,904	88.3	1,051	11.7	8,955

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In Wisconsin and Wyoming, osteopaths are granted the right to practice surgery.

It is to be regretted that such persons as those described in tables 12 and 13 are granted the right to

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TABLE 16.—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1936*

| Marginal Number | | 1 Alabama | | 2 California | | 3 Colorado | | 4 Connecticut | | 5 Florida | | 6 Idaho | | 7 Illinois | | 8 Iowa | | 9 Maine | | 10 Maryland | | 11 Massachusetts | | 12 Michigan | | 13 Missouri | | 14 New Hampshire | | 15 New Jersey | | 16 New York | | 17 Ohio | | 18 Oklahoma | | 19 Pennsylvania | | 20 Rhode Island | | 21 South Carolina | | 22 Tennessee | | 23 Texas | | 24 Vermont | | 25 Virginia | | 26 West Virginia | | 27 Wisconsin | | 28 Hawaii and Puerto Rico | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. of Boards Examined by | Marginal Number |
|---|---|---

| | | |

(CONTINUED FROM PAGE 1427)

practice. The medical profession should be ever watchful and untiring in its efforts to prevent osteopaths and others from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate. If the licensing boards were more fully conscious of their responsibility to protect the citizens of their respective communities from ignorance and incompetence masquerading as medical skill, we should not continue to have year after year licenses granted to persons whose training falls so far short of the currently accepted standards of medical education.

SOURCE OF PHYSICIANS REGISTERED

The educational fitness of the individuals registered in the last fifteen years, 1922-1936, is shown in table 14. Of the 8,955 registered by all methods in 1936, 7,904, or 88.3 per cent, graduated from approved medical schools and there were 1,051, 11.7 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.

ANNUAL REGISTRATION

Eighteen states require that all physicians licensed register annually, whether or not they reside in the state. These states are:

Arkansas (Eclectic Board only)	Minnesota
California	Nebraska
Colorado	Nevada
Connecticut	New York
Florida	North Dakota
Idaho	Oregon
Iowa	Pennsylvania
Kansas	Texas
Louisiana	Utah

Five states—Alabama, Delaware, Georgia, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. In New Mexico, annual registration legislation is pending. The fee for this registration is generally $2.

GRADUATES OF FACULTIES OF MEDICINE ABROAD

A study of the number of Americans pursuing medical courses in Europe has been carried on by the Council since 1931, when it became evident that great numbers of Americans were going to Europe to study. There are now about 1,500 American students studying abroad who apparently plan to return to the United States to practice. Graduates of faculties of medicine abroad examined for licensure in 1936 are presented in table 16. These represent both American and foreign born physicians. Sixty-seven medical schools and six licensing corporations of fourteen European and two Latin American countries were represented. There were 588 examined, of whom 380 passed and 208, 35.4 per cent, failed. The numbers examined, passed and percentage failed for seven years are shown in table 17. As will be noted, the number being examined is steadily increasing.

In addition to the figures given, 264 graduates of foreign medical faculties were licensed in 1936 without examination and 237 of the 264 so registered were granted licenses in New York on the basis of their foreign diplomas or licenses, while the remainder (twenty-seven) had already been examined by a state board in this country and were merely migrating.

Graduates of foreign medical faculties were licensed in thirty states; in twenty-seven states, Hawaii and Puerto Rico by examination and in thirteen states without examination.

The increase in the number examined in 1936 represents mostly the Americans who began the study of medicine in 1930. In 1933 the Federation of State Medical Boards adopted a resolution to the effect that no student matriculating in a European medical school subsequent to the academic year of 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals, and graduation from a European medical school after four academic years of attendance, and further submits evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located. This policy of the federation has been made effective by individual action on the part of the state licensing bodies and the National Board of Medical Examiners and will have its desired effect in the future.

In 1934 the Federation of State Medical Boards passed a resolution recommending to its constituent boards that, until adequate information is available, these boards deny graduates of foreign medical schools admission to the licensure examination. However, such candidates, as has just been mentioned, were registered in thirty states.

Several years ago the governments of many European countries sent representatives to this country to discuss appropriate measures for dealing with students from the United States. By the raising of entrance requirements, reduction in enrolment and careful scrutinizing credentials, the number studying abroad should be reduced.

Chart 3 shows in graphic form the states which during 1936 registered graduates of foreign medical faculties by examination, endorsement or both. From a perusal of tables 2 and 3 it can be ascertained how many were licensed by both these means in the various states. New York, as has been brought out, licensed 454 foreign graduates of the 644 so registered. Of these, 217 were examined and 237 registered without examination. The next highest figure, thirty-seven, were examined in Maryland, while in New Jersey eighteen were examined and eight licensed without examination. The states in black in the chart licensed more than five graduates of foreign schools; those shaded, five or less.

TABLE 17.—*Graduates of Faculties of Medicine Abroad Examined—1930-1936*

Date	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	302	30.9
1936	588	380	35.4

In table 15 are assembled figures showing the standing during the six year period 1931-1936 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1936. One hundred and twenty-eight schools and eight of the licensing corporations of Great Britain were represented. During the five year period (1931-1935) 1,282 were examined and in 1936, 588. The largest number represented the Regia Università di Napoli, 119, of whom 61.3 per cent failed. The Universität Wien in the five year period was second, eighty-nine, of whom 31.5 per cent failed. There were eighty-four from the Regia Università of Roma with 53.6 per cent of failures, while the University of Edinburgh, with sixty-eight examined, had 8.8 per cent failures. A study of the percentage failed is of interest. Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various states he is recorded as such for a given year.

BASIC SCIENCE BOARDS

In nine states and the District of Columbia a certificate in the basic sciences is a prerequisite to a license to practice medicine. This certificate is obtainable after examination in the majority of instances. Boards for certification of candidates in the basic sciences functioned during 1936 in Arizona, Arkansas, Connecticut, the District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin. The newest addition to this group is Iowa, whose basic science board operated for the first time in 1935. The Supreme Court of Arizona voided the basic science act of that state in 1936 but the legislature reenacted the law without change. No other basic science act was passed in 1936. In 1937, according to data submitted to the Bureau of Legal Medicine and Legislation of the American Medical Association, basic science legislation was introduced in Colorado, Georgia, Kansas, Maine, Michigan, New Mexico, Oklahoma, Tennessee, Utah, West Virginia and Wyoming. In addition, amendments to existing laws were proposed in Nebraska and in Oregon.

TABLE 1.—*States Having Basic Science Laws and Year of Enactment*

State	Year Enacted
Arizona	1933
Arkansas	1929
Connecticut	1925
District of Columbia	1929
Iowa	1935
Minnesota	1927
Nebraska	1927
Oregon	1933
Washington	1927
Wisconsin	1925

Statistics based on the number of candidates certified in 1936, and those who failed to secure this certification, together with the totals for other years shown for comparison, are included in the accompanying tabulations.

In table 1 is shown the years in which the various basic science acts were enacted.

In table 2 will be found the subjects in which examinations were conducted in the respective states and the District of Columbia. The subjects included in basic science examinations are specified by the basic science acts. The examining boards may neither add to nor subtract from such subjects. Since the table was last published,[1] no legislative changes have occurred with respect to examination subjects.

Applicants examined during 1936 in the various groups—physicians or medical students, osteopaths, chiropractors, and those unclassified—are included in table 3. There were 1,098 examined by the ten boards. Of this number 1,032 were doctors of medicine or medical students (referred to hereafter for clarity as physicians), thirty-two osteopaths, fifteen chiropractors, and for nineteen it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder compose the unclassified group. Of the physicians examined 13.7 per cent failed, of the osteopaths 56.3 per cent, of the chiropractors 73.3 per cent and of those unclassified 57.9 per cent. There were 891 physicians who passed, fourteen osteopaths, four chiropractors and eight unclassified. Minnesota examined the largest number, 271, of whom 19.6 per cent failed. The next largest number, 158, were examined in Wisconsin, with 5.7 per cent failures. The District of Columbia, on the other hand, examined only seventeen, of whom 23.5 per cent failed. Of osteopaths, six were examined in Washington and Wisconsin, five in Minnesota and Oregon, three in Iowa and Nebraska,

TABLE 2.—*Subjects of Examinations*

	Examinations Required in						
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology
Arizona	+	+	+	..	+	+	+
Arkansas	+	+	+	..	..	+	+
Connecticut	+	..	..	+	+	+	+
District of Columbia	+	+	+	..	..	+	+
Iowa	+	+	+	..	+	+	+
Minnesota	+	+	+	..	+	+	+
Nebraska	+	+	+	..	+	+	+
Oregon	+	..	+	..	+	+	+
Washington	+	..	+	..	+	+	+
Wisconsin	+	..	..	+	..	+	+

TABLE 3.—*Applicants Examined—1936*

	Physicians or Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona	20	11	1	1	0	0	0	0	33	21	12	36.4
Arkansas	57	16	0	0	0	0	0	0	73	57	16	21.9
Connecticut	139	3	1	1	0	1	0	1	146	140	6	4.1
District of Columbia	13	4	0	0	0	0	0	0	17	13	4	23.5
Iowa	10	10	2	1	0	0	2	2	27	14	13	48.1
Minnesota	214	45	2	3	2	3	0	2	271	218	53	19.6
Nebraska	88	30	1	2	0	0	0	0	121	89	32	26.4
Oregon	98	7	2	3	0	0	5	5	120	105	15	12.5
Washington	109	14	2	4	0	3	0	0	132	111	21	15.9
Wisconsin	143	1	3	3	2	4	1	1	158	149	9	5.7
Totals—Examined	1,032		32		15		19		1,098			
Totals—Passed	891		14		4		8		.....	917		
Totals—Failed	141		18		11		11		.....	...	181	
Percentage—Failed	13.7		56.3		73.3		57.9		.....	...	...	16.5

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two each in Arizona and Connecticut, and none in Arkansas and the District of Columbia. Chiropractors were examined in Connecticut (one), Minnesota (five), Washington (three) and Wisconsin (six). Of the total number of applicants examined, 917 passed and 181, 16.5 per cent, failed.

The number of certificates granted by examination, reciprocity and endorsement are listed in table 4. A

TABLE 4.—*Certificates Issued by Examination, Reciprocity and Endorsement—1936*

	Examination					Reciprocity and Endorsement					
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Arizona	20	1	0	0	21	0	0	0	0	0	21
Arkansas	57	0	0	0	57	26	2	1	0	29	86
Connecticut	139	1	0	0	140	0	0	0	0	0	140
District of Columbia	13	0	0	0	13	0	0	0	0	0	13
Iowa	10	2	0	2	14	0	0	0	0	0	14
Minnesota	214	2	2	0	218	44	0	0	0	44	262
Nebraska	88	1	0	0	89	16	0	0	0	16	105
Oregon	98	2	0	5	105	5	3	0	0	8	113
Washington	109	2	0	0	111	0	0	0	0	0	111
Wisconsin	143	3	2	1	149	60	4	0	0	64	213
Totals	891	14	4	8	917	151	9	1	0	161	1,078

total of 917 certificates were granted after examination, of which 891 were issued to physicians, fourteen to osteopaths, four to chiropractors, and eight to persons who were unclassified. There were 161 candidates certified without examination, by reciprocity or endorsement, consisting of 151 physicians, nine osteopaths and one chiropractor. Wisconsin accepted the greatest number without examination, sixty-four, of whom sixty were physicians and four osteopaths. Minnesota registered forty-four physicians by this method and Arkansas twenty-six physicians, two osteopaths and one chiropractor. Arizona, Connecticut, the District of Columbia, Iowa and Washington licensed none without examination.

TABLE 5.—*Total Candidates—1927-1936*

	Number of Boards	Physicians or Medical Students				Other Practitioners			
		Examined	Percentage Failed	Endorsement	Total Certified	Examined	Percentage Failed	Endorsement	Total Certified
1927	5	305	8.5	26	305	22	31.8	1	16
1928	5	646	9.3	19	605	59	47.5	0	31
1929	7	668	8.7	75	685	66	53.0	0	31
1930	7	685	11.5	104	710	78	61.5	4	34
1931	7	680	13.8	130	716	107	55.1	0	48
1932	7	657	10.2	98	688	78	43.6	12	56
1933	8	601	12.3	117	644	60	50.0	10	40
1934	9	815	11.0	123	848	51	49.0	11	37
1935	10	882	13.7	92	852	74	55.4	4	37
1936	10	1,032	13.7	151	1,042	66	60.6	10	36
Totals		6,971	11.6	935	7,096	661	52.5	52	366

Table 5 shows the number of candidates examined and certified from 1927 to 1936 inclusive. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent, failed. In 1936, 1,042 physicians and thirty-six other practitioners were certified. During the ten year period a total of 6,971 physicians were examined, of whom 11.6 per cent failed, and 661 other practitioners, of whom 52.5 per cent failed. During this period 935 physicians were certified without examination, while only fifty-two other practitioners were so registered.

Altogether, 7,462 certificates have been issued by basic science boards since 1927, of whom 7,096 were granted to physicians and 366 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of other practitioners appearing for examination and licensure was very considerable and was growing.

The basic science board seems desirable in states having a multiplicity of examining and licensing boards. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, organized in 1915, conducts examinations and awards successful candidates a certificate, which is regarded as an adequate qualification for the practice of medicine. Since 1922 its examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical oral examination. In the following paragraphs are presented data regarding the examination and the issuance of certificates and include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplication by counting the last examination if more than one part is taken within the year, and also of those certified or failing of certification. Figures from compilations not reproduced here are also discussed. Similar data have been presented in the State Board Number of THE JOURNAL for nineteen years.

Four examinations were held in parts I and II during 1936, at which 1,344 and 768, respectively, were examined. In part I, 858 passed and 123, 12.5 per cent, failed, while in part II, 716 passed and 50, 6.5 per cent, failed. There were 363 who took incomplete examinations in part I. This examination is arranged for candidates taking part I at the end of their second medical year, who are attending schools, the third year curriculum of which includes courses in one or two subjects of part I. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Also listed under this heading are those who wish to spend some additional time on one or two subjects. Incomplete examinations were not included when computing percentages, since they represent neither a candidate eligible for certification nor a failure. Two candidates took incomplete examinations in part II.

Since 1922, a total of 14,287 examinations have been given in part I and 7,402 in part II. From 1922 to 1936 inclusive, 9,160 individuals were successful in passing

part I, and 6,631 in part II. The figures for those examined include 3,656 incomplete examinations in part I and thirty-five in part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass part I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the fifteen year period since 1922 there were 1,471 failures in part I, 13.8 per cent, and 736 in part II, 10.0 per cent.

In 1922, 388 were examined in part I with 20.3 per cent failures as compared with 1,344 in 1936 with 12.5 per cent failures. In part II in 1922, 109 were examined and 17.4 per cent failed, while, in 1936, 768 were examined and 6.5 per cent failed.

The results of examinations in part III for the fifteen year period 1922 to 1936 inclusive are presented in table I, reproduced here. In 1936, 576 were examined, as compared with only twenty-eight in 1922. Of the number examined in 1936, twenty-nine, or 5.0 per cent, failed. The highest percentage of failures was in 1927,

TABLE 1.—*Examinations in Part III*

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922	28	28	0	0.0
1923	76	75	1	1.3
1924	120	114	6	5.0
1925	217	206	11	5.1
1926	255	243	12	4.7
1927	294	272	22	7.5
1928	322	306	16	5.0
1929	351	336	15	4.3
1930	419	400	19	4.5
1931	437	419	18	4.1
1932	549	521	28	5.1
1933	552	527	25	4.5
1934	581	548	33	5.7
1935	598	578	20	3.3
1936	576	547	29	5.0
Totals	5,375	5,120	255	4.7

when 294 were examined and twenty-two, 7.5 per cent, failed. During 1936, 547 were granted certificates. In fifteen years, 5,375 were examined, of whom 5,120 were granted certificates and 255, 4.7 per cent, failed. Here again a candidate having failed may subsequently receive a certificate.

From 1915 up to and including 1936, 5,387 certificates have been granted.

The number of individuals examined during any one year are given in table 2. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1936 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,515 who took the examination of the National Board of Medical Examiners during 1936, as compared with 525 in 1922. A total of 19,358 passed one or more of the examinations in the fifteen years shown and 2,183, or 10.1 per cent, failed. Incomplete examinations have been taken by 3,491 individuals, many of whom have since received certificates.

Diplomates licensed on the basis of their credentials in the United States have increased from two in 1917 to 540 in 1936, 3,561 having been so licensed since the National Board was created. A total of 5,387, however, have received the certificate of the National Board. In 1936, 540 diplomates were registered on the basis of credentials in forty-one states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-two states, the District of Columbia, Alaska, Canal Zone, Hawaii and Puerto Rico. Some of these boards, however, have additional requirements.

Alabama	Hawaii	Montana	Pennsylvania
Alaska	Illinois	Nebraska	Puerto Rico
Arizona	Indiana	Nevada	Rhode Island
Arkansas	Iowa	New Hampshire	South Carolina
California	Kansas	New Jersey	South Dakota
Canal Zone	Kentucky	New Mexico	Tennessee
Colorado	Maine	New York	Utah
Connecticut	Maryland	North Carolina	Vermont
Delaware	Massachusetts	North Dakota	Virginia
District of Columbia	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	West Virginia
	Missouri	Oregon	Wyoming

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is also recognized in South Africa, Spain, Syria and Turkey.

Five medical schools now require their students to pass either part I of the National Board examination or parts I and II. Several other schools give their students the option of taking the National Board examination or the school's comprehensive examination. In one or two schools, passing the board's examination in part I excuses the candidate from a portion of the final comprehensive examination given at the end of the fourth year.

Because many graduates of European medical faculties are applying for internships in this country, the Council on Medical Education and Hospitals at a meeting in February 1936 voted that, "when suitable graduates of class A schools of the United States and Canada

TABLE 2.—*Parts I, II and III, Excluding Duplications*

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	355	137	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	408	129	6.6
1936	2,515	1,987	353	175	8.1
Totals	25,032	19,358	3,491	2,183	10.1

are not available, hospitals approved for intern training may accept graduates of European schools who have passed parts I and II of the examinations of the National Board of Medical Examiners."

Examinations in parts I and II are held at class A medical schools in any center where there are five or more candidates available, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 24, 1937

STATE BOARD REPORTS

In this issue the Council on Medical Education and Hospitals presents the thirty-fifth annual review of medical licensure. In the licensing examination of the graduates of sixty-seven medical schools in the United States and nine in Canada, 6,906 candidates were examined with 10.1 per cent failures. From the schools in the United States there were 5,705 examinees with 4.3 per cent failures. The New York Medical College and Flower Hospital, Georgetown University School of Medicine and Tufts College Medical School had among their graduates the unenviable record of 22.5 per cent, 21.8 per cent and 21 per cent, respectively, of failures.

The increment of the medical profession consisting of physicians licensed for the first time was 6,166, which is greater by 659 than the number so licensed in 1935. From table 6, showing the distribution of these physicians by sections, it is evident that practically half of the total were licensed in the Middle Atlantic group of states and in the East North Central group.

Although more than thirty-five years has elapsed since the publication of the Flexner report, there are still ten states which license graduates of unrecognized medical schools, Illinois leading with eighty-four and Massachusetts taking second place with seventy-seven. The percentage of licensees who are graduates of unrecognized schools has increased in the last four years from 6.3 to 11.7.

Six hundred and forty-four graduates of schools outside the United States and Canada were licensed. All but 190 of these were licensed in New York. Of those who tried the examinations, 35.4 per cent failed. The candidates represented seventy European faculties and three in Latin America. Among their graduates, in many instances, the record of failure was higher than 50 per cent.

The influence of the National Board of Medical Examiners has steadily increased since its inception in 1915. Five hundred and forty-seven certificates were awarded in 1936. Forty-two states and the District of Columbia have recognized the diploma of the National Board.

THE SIGNIFICANCE OF ALLERGY IN DISEASE

A field as new and as vigorously studied as that encompassed by the term "allergy" receives constant modification and revision.[1] Goldsmith [2] states that its meaning has now been broadened to include specific changes of sensitiveness to substances other than infective agents. It will not, however, stand being confined within the bonds of too strict a definition. In his view the most practical definition of allergy today is "a specific change in the degree of sensitiveness towards a definite substance or physical stimulus on the part of an individual or of one or more of his tissues." Dowling [3] feels, however, that there is little prospect of arriving at a definition of allergy that can be universally accepted. In the one type of allergic reaction in which the mechanism is to a large extent known, namely, sensitivity to foreign proteins, the reaction has been demonstrated to be the result of antibody-antigen interaction. Opie [4] also points out that the meaning of allergy varies widely with usage. He feels it desirable to apply this term as originally proposed by Pirquet to the changed state with relation to antigens that follows their introduction into the body rather than to the phenomena of sensitization alone. In this sense, Opie states, it includes both the tissue changes at the site of contact with the antigen and the acute functional disturbances such as anaphylactic shock, following dissemination of antigen by way of the blood stream. It is inadvisable, he believes, to apply it to changes not related to the phenomena of immunity.

The meaning of the term is inextricably bound up with the conception of what constitutes allergic etiology. According to Goldsmith, although allergy cannot be given a strict etiologic definition there is one etiologic idea which was an essential feature of Pirquet's conception; namely, that the altered reactivity was caused by the previous contact or contacts with the substance or infective agent. Dowling believes, however, that it is possible that sensitivity may be the result of circumstances other than previous contact; for example, an illness. Even when dealing with atopy, which is a term coined especially to include certain definite types of allergy, the meaning is not entirely uniform. An atopic dermatosis, according to Goldsmith, is an allergic disturbance in which the paramount causal factor is an inherited state called "atopy." Coca also demands for atopy the following attributes: (1) It is peculiar to man; (2) it is characterized by specific circulating antibodies or reagins, which are not precipitins but demonstrable by passive transmission; (3) there is familial and personal history of atopic dermatitis, asthma or hay fever; (4) there is eosinophilia in the blood and

1. Definition of Allergy, editorial, J. A. M. A. **104**: 2000 (June 7) 1935.
2. Goldsmith, W. N.: Allergy, Brit. J. Dermat. & Syph. **48**: 593 (Dec.) 1936.
3. Dowling, G. B.: Allergy, Brit. J. Dermat. & Syph. **48**: 601 (Dec.) 1936.
4. Opie, E. L.: Significance of Allergy in Disease, Medicine **15**: 489 (Dec.) 1936.

exudates; (5) intracutaneous tests are positive and patch tests negative; (6) there is relief on avoidance of offending circumstances and recurrence on exposure, and (7) atopens are usually protein. Dowling supplements this conception of atopy by citing the evidence indicating that atopic eczema is due to food allergy. Sensitivity to foods is common in atopic eczema, cutaneous tests to extracts of foods are often positive, and both children and adults have been said to improve on a lactovegetarian diet or on diets from which the foods to which they give positive reactions are rigidly excluded.

Allergy, according to Opie, is essential for the production of certain diseases. A heightened inflammatory reaction with accumulation of both granulocytes and mononuclear cells is characteristic of tissue sensitization. Such inflammation follows the usual course with primary exudation of polymorphonuclear granulocytes, followed by accumulation of histiocytes with ability to act as phagocytes. The course and lesions of certain infectious diseases are hence profoundly modified by the phenomena of sensitization. Allergic inflammation, which is the characteristic manifestation of sensitization of tissue, is produced by many micro-organisms, by products derived from them, by foreign proteins and perhaps by some other substances. With allergic inflammation, all the elements that constitute an inflammatory exudate, namely, serum, fibrin, granulocytes, including eosinophilic leukocytes, and histiocytes, accumulate with greater rapidity and in greater numbers than in the normal animal; antibodies if present in the blood are brought to the site of inflammation in increased quantity. Allergic phenomena, Opie believes, are necessary for the production of several common diseases, such as rheumatic fever, glomerular nephritis and lobar pneumonia in addition to tuberculosis and the other practically accepted allergic diseases.

One of the best understood and most fascinating examples of allergic disease is asthma. Since it is commonly true that broadened knowledge of a whole field may be obtained by concentrated effort in one branch, the latter syndrome has received unusual study. As an example of the excellent work now being done in asthma, that by Conybeare and Knott [5] on the evaluation of the result of bacillary vaccines in asthma may be cited. Autogenous vaccines of gram-negative bacilli of the Friedländer type were found of benefit in the treatment of asthma in cases of moderate severity in which the bronchiolar infection with these organisms was demonstrated. Although specific hypersensitivity did not appear to be concerned in these results, the action of the vaccines in asthmatic patients is probably, to some extent, of a specific character.

The function and purpose of the allergic reactions are receiving close attention, and some attempt is being made to apply the results of laboratory experiments to patients. The increased understanding of tissue reactions is a step forward. Concerning the allergic subject, however, it is not yet certain that his variation from the normal depends on anything more than a quantitative change.

5. Conybeare, E. T., and Knott, F. A.: Bacillary Vaccines in Asthma, Guy's Hosp. Rep. **86**: 420 (Oct.) 1936.

ACTION OF VIBRION SEPTIQUE TOXIN IN ANIMALS

The anaerobe Vibrion septique produces a specific toxin that causes striking effects when inoculated intravenously into laboratory animals. This toxin is unusual in the rapidity of its action, especially on rabbits. A recent study of the gross and microscopic changes produced by the toxin in animals has been reported by Pasternack and Bengtson.[1] The animals used were rabbits, mice, guinea-pigs and pigeons; the results of the studies on these animals disclose certain facts that appear important in understanding the pathologic physiology of fatal human "gas" gangrene due to this organism.

The toxin of Vibrion septique has powerful cardiotoxic properties if not even a special affinity for the heart. This organ in almost all animals that survive any length of time shows lesions of some character. Intense capillary engorgement, conglutination and fusion of the red blood cells and occasionally hyaline thrombi are commonly noted. Scattered focal interstitial hemorrhages and some degree of edema are also frequently seen. Hyaline degeneration or Zenker's necrosis is the essential and most important lesion of the heart. It is found in some degree in almost all animals and is probably the cause of death and the explanation for the recorded pathologic changes. In intoxications of short duration the segment of a cell, a whole cell or a few scattered cells or cell groups may show the degeneration. In intoxications of many hours or of several days the musculature may show such advanced necrosis as to be unrecognizable. The picture, in fact, may resemble an intense suppurative process, but micro-organisms are never demonstrable. No previous references to the nephrotoxic properties of the specific toxin of Vibrion septique were found by these investigators. Intravenous inoculations, however, produce lesions early and with considerable regularity in rabbits, mice, guinea-pigs and pigeons. The severity of the lesions produced varies more or less with the duration of the intoxication. Gross lesions occur erratically but are not infrequently seen in intoxications of two or three days' duration. The perirenal tissues show hemorrhagic extravasations, and the kidneys red hemorrhagic and yellowish necrotic mottling. Microscopically the lesions in the different animals vary only in degree and in the rapidity with which they develop. The degenerative changes are virtually limited

1. Pasternack, J. G., and Bengtson, Ida A.: The Experimental Pathology and Pathologic Histology Produced by the Toxin of Vibrion Septique in Animals, Bull. 168, National Institute of Health, U. S. Treasury Dept., 1936.

to the cortex. Some degree of cloudy swelling and hydropic and colloid droplet degeneration of the convoluted tubules and ascending limbs of Henle's loops are usually found. Necrosis of the tubules may occur early in the intoxication but is more usual later. Glomerular congestion and more or less conglutination and later fusion of the red blood cells are seen in most of the animals. The liver shows lesions in only a small percentage of animals. When present they usually occur late and vary from advanced cloudy swelling to irregularly disposed foci of coagulation necrosis of variable size. The spleen is regularly distended with blood, and in a few instances gross hemorrhagic infarcts are present. Congestion, edema and hemorrhage occur inconstantly but not infrequently in the bone marrow. Lesions of the adrenal glands are rare in mice but are seen occasionally in rabbits as gross hemorrhages or hemorrhagic necroses.

Only the brains and cords of rabbits were examined. Ring hemorrhages in the cerebellum, pons and corpus striatum and necrosis of Purkinje cells are occasionally seen. The thymus in rabbits shows congestion, edema, hemorrhages, capillary hyaline thrombi, diffuse infiltrations of polymorphonuclear leukocytes and variable degrees of pyknosis and karyorrhexis of the lymphocytes of the cortex.

The characteristic pathologic changes determined in animals reveal a virulence of this toxin and effects demonstrable in vital organs which indicate the causes for its rapidly fatal action in human beings.

LIBERTY OR LICENSE IN MEDICAL EDUCATION

Freedom of action which contravenes the rights of others is no longer liberty. The state owes to its citizens the duty to protect them from ignorance and incompetence masquerading as medical skill. Health and life itself, our most treasured possessions, must be safeguarded, even at the expense of denying by statutory restrictions the freedom of every individual, trained or untrained, to practice medicine and certain other professions. If this is conceded, it follows that the state in the fulfilment of this obligation must satisfy itself beyond a shadow of doubt of the knowledge, skill and character of those whom it endorses and whose ability it guarantees. Such assurance is derived in part, but only in part, from licensing examinations. It rests in still greater degree on evaluation of the candidate's training and experience. Every state therefore has prescribed a certain minimum of preliminary and professional education as prerequisite to the licensing examination. In order to appraise the credentials of applicants, the state must directly or indirectly evaluate the institutions from which they come and determine which professional schools are in a position to satisfy the requirements of the law.

Recently two prominent educators [1] have expressed rather bitterly their views of so-called interference by standardizing agencies and demanded that universities be granted freedom to follow their own bent. President Capen says:

> There has never been a just classification. Either the criteria are too limited, or they are not significant, or they are not applied with sufficient discrimination. The effect of an unfavorable rating is devastating to the institution which is the victim. Invariably its development is retarded. Invariably its morale is lowered. It may be permanently ruined.

The universities have brought on themselves a large part of the ills of which Dr. Capen complains through their own failure to distinguish between standards imposed for the protection of the most vital interests of the public in connection with such professions as law and medicine, and a host of other regulatory measures dealing with vocational training in which the public interest and the universities' responsibility are by no means so clear.

In the thirty-first annual report of the Carnegie Foundation for the Advancement of Teaching, on the other hand, Mr. William S. Learned [2] points out a fundamental and significant difference between "liberal" and "professional" education:

> In professional education, on the contrary, standards of selection and of curriculum achievement both in amount and quality are the inexorable criteria of all procedure. The purpose of such education is to ensure a social service of superlative worth and competence. The agent is comparatively unimportant; regardless of his wishes or career, the community will, in the long run at least, choose those who can do most for it, and it is this impersonal and self-denying attitude which is accepted by all high-minded practitioners as expressing the finest ideals of any profession.
>
> In looking into the intellectual status of prospective teachers, therefore, as of prospective doctors or lawyers, the social critic has the right to disregard the legitimate claims of the individual to a suitable education at his own level and to urge that, in the interests of the cause he serves, certain fixed standards of achievement be enforced. It is not the individual but the service which is at stake. To be sure, at any given time, these standards will be governed by the existing state of knowledge, the economic situation, and the social insight of the community concerned. Nevertheless, whatever they are and whatever they cost, their claim is paramount, in any inventory such as that which is now before us.

The advances in medical education during the last thirty years have been nothing short of phenomenal. History affords no parallel. In large measure these results have accrued through the process of classification applied by the Council on Medical Education and Hospitals and the systematic publication of the results in THE JOURNAL. Far from being "demoralizing" or "devastating," these activities have usually been stimulating and constructive. Those who clamor so loudly for liberty should never forget that in the training of lawyers, dentists and doctors the public has a paramount interest.

1. Capen, S. P.: Privileges and Immunities, Bull. Am. A. University Professors, March 1937, p. 190. Lipman, C. B.: Professional Associations and Associations of Professional Schools and Some Problems Which They Pose for American Universities, J. Proc. & Addresses, 38th Annual Conference, Association of American Universities, November 1936, p. 131.

2. Learned, W. S.: Educational Enquiry, Tested Achievement of Prospective Teachers in Pennsylvania, 31st Annual Report, Carnegie Foundation for the Advancement of Teaching, 1936, p. 29.

Current Comment

SUBACUTE COMBINED DEGENERATION IN PERNICIOUS ANEMIA

Great differences of opinion still exist concerning the reaction of the neurologic manifestations of pernicious anemia to specific therapy. A most thorough study of this problem is the report by Hyland and Farquharson [1] in the December issue of the *Archives of Neurology and Psychiatry*. The wide variation of opinion manifest in previous studies indicates, they believe, that there must be differences either in the treatment administered or in the interpretation of the clinical results. In addition to variation in the mode and quantity of antianemic substances prescribed, there are wide fluctuations in the duration and in the amount of rest, both of which are factors of great importance. The patients studied by these investigators included seventy-four persons with pernicious anemia associated with definite subacute combined degeneration of the spinal cord. On admission to the hospital the patients were kept at complete rest in bed, and potent liver preparations were administered as soon as the investigation was completed. Most patients in the series were given daily by mouth the extract derived from 1,000 Gm. of liver, sometimes receiving in addition from 113 to 142 Gm. of whole liver. The period of complete rest was gradually lengthened. Since 1930 all patients with moderate or severe subacute combined degeneration have been kept at complete rest in bed for an initial period of three months. Since it was found that great improvement occurred most commonly between the third and the sixth month of therapy, the patients were kept in the hospital for long periods, usually from four to twelve months. For purposes of description, the degree of degeneration was classified as mild, moderate or severe, according to the neurologic signs present when the patient was admitted to the hospital. The response to treatment was classified as marked improvement, which consisted of freedom from symptoms and definite improvement in the objective neurologic signs; moderate improvement, which consisted of definite improvement in the neurologic symptoms with little or no change in the principal physical signs, and slight or no improvement. Under the treatment outlined, forty-one patients improved markedly, sixteen showed moderate improvement, in nine the improvement was slight or stationary, and eight died shortly after admission. Analysis of the individual results made it clear that great improvement occurred most frequently in the cases of mild degeneration, but occasionally marked improvement was noted even in the severe cases. In general, the longer the duration of neurologic symptoms the more slowly did improvement become demonstrable, although individual exceptions were noted. The most satisfying symptomatic improvement was in the ability to use the legs. This recovery in gait was dependent on recovery of power, postural sense and muscle tone of the affected limbs. Of almost equal importance was the improvement of the disturbance of the control of the sphincters that so commonly followed adequate treatment. The most persistent abnormal signs were the altered reflexes, which, however, did show a favorable trend in some cases. It was noteworthy that improvement in motor and sensory function frequently occurred in the absence of any recovery from abnormal reflexes. The authors therefore concluded that, by administration of liver therapy in adequate amounts and for sufficiently long periods, subacute combined degeneration can be prevented, its progression completely arrested and great improvement obtained, especially in cases of short duration.

1. Hyland, H. H., and Farquharson, R. F.: Subacute Combined Degeneration of the Spinal Cord in Pernicious Anemia, Arch. Neurol. & Psychiat. **36**: 1166 (Dec.) 1936.

CARBOHYDRATE METABOLISM AND VITAMIN C

With the development of a chemical method for the estimation of cevitamic acid which is reasonably specific, is adapted to examination of natural tissues and fluids and can be carried out in a short time, records have appeared of many investigations showing the localization of vitamin C in several tissues of the body. The adrenal cortex, pituitary and corpus luteum appear to be especially rich in this substance, although in lesser concentrations it is widely distributed throughout the organism. In view of its labile chemical constitution and widespread occurrence it seems safe to assume that cevitamic acid has an important function in the body, although at present this is but vaguely understood. Through the use of the synthetic vitamin in a wide variety of studies both clinical and experimental, an approach is being made to the elucidation of the part which this indispensable dietary factor plays in physiologic economy. A recent report by Sigal and King [1] indicates that carbohydrate metabolism is influenced by cevitamic acid. Guinea-pigs were used and the index of effect produced was the alteration in the blood sugar concentration (dextrose tolerance) after administration of dextrose by mouth. Each animal was its own control; the normal response was compared to that obtained after ten, fifteen and twenty days on a scurvy-producing ration. Then followed realimentation with vitamin C, and after ten and fifteen days on the adequate diet the dextrose tolerance was again measured. With deprivation of cevitamic acid there was a progressive decrease in the ability of the organism to dispose of the absorbed sugar, evident as early as ten days after removal of the vitamin from the experimental ration. On realimentation, after fifteen days, the blood sugar values during the tolerance test had returned to the normal values. As similar metabolic changes were not observed in other vitamin deficiencies, it is concluded that the effect is more or less specific for cevitamic acid. Older studies [2] indicated that the loss of body weight during the development of acute scurvy cannot be accounted for entirely by the accompanying partial inanition; the present investigation points to a fundamental difficulty in metabolism of absorbed carbohydrate as an explanation. The evidence emphasizes again the manifold importance of vitamin C in the chemistry of living processes.

1. Sigal, A., and King, C. G.: J. Biol. Chem. **116**: 489 (Dec.) 1936.
2. Anderson, W. E., and Smith, A. H.: J. Biol. Chem. **61**: 181 (Aug.) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

State Medical Meeting at Del Monte, May 2-6.—The sixty-sixth annual session of the California Medical Association will be held at the Hotel Del Monte, Del Monte, May 2-6, under the presidency of Dr. Edward M. Pallette, Los Angeles. Out-of-state speakers include:

Dr. Jesse G. M. Bullowa, clinical professor of medicine, New York University College of Medicine, New York, A Summary of Changes in the White Blood Cells in Various Diseases.
Dr. Norman F. Miller, professor of obstetrics and gynecology and head of the department and Bates professor of diseases of women and children, University of Michigan Medical School, Ann Arbor, The Uterine Cervix: Its Disorders and Their Management.
Dr. Cyrus C. Sturgis, professor of internal medicine and director of the department, University of Michigan Medical School, Ann Arbor, Clinical-Pathologic Conference.
Dr. Louis H. Maxson, Seattle, Spinal Anesthesia—Present Status.

In addition to the independent sectional programs, the following sections will combine in a symposium on pneumonia: medicine; surgery; obstetrics and gynecology; pediatrics; pathology; eye, ear, nose and throat, and radiology. Included among the California speakers on the program will be:

Drs. William J. Kerr, Paul A. Gliebe and James W. Dalton, San Francisco, Some Physical Phenomena Associated with Anxiety States and Their Relationship to Hyperventilation.
Drs. Mark A. Glaser and Clinton H. Thienes, Los Angeles, Experimental and Clinical Studies on Repair of the Dura Mater.
Dr. Emile F. Holman, San Francisco, Recent Advances in the Surgical Treatment of Pulmonary Tuberculosis Through Selective Collapse by Partial Thoracoplasty.
Dr. Frank W. Lynch, San Francisco, Radium Reaction in Cancer of the Cervix.
Dr. Wilber F. Swett, San Francisco, Use of Snake Venom in Postoperative Hemorrhage of the Eye.
Dr. Clarence G. Toland, Los Angeles, The Explosion Hazard in Anesthetic Gas Mixtures.
Mr. William M. Rains, Los Angeles, What the Doctor Should Know About the Law for His Own Protection.

The Past Presidents' Breakfast will be held Tuesday morning and the President's Dinner Tuesday evening. Entertainment will include golf and a skeet shoot. The annual conference on pathology, under the auspices of the cancer commission of the state medical association, will be held May 2 and the radiologic conference, also sponsored by the commission, will take place the same day. The woman's auxiliary will hold its eighth annual session concurrently with the state association.

CONNECTICUT

The Blood Test Marriage Law.—In the first eleven months of 1936 there were 7,347 marriages compared with 11,109 for the similar period in 1935, according to Dr. Stanley H. Osborn, Hartford, state health commissioner. This is the first year in which a blood test was mandatory before the issuance of a marriage certificate. The importance of the law is reflected in the data available showing that many of the persons found with syphilis had no knowledge of the infection prior to the blood test. For the period reported on, syphilis was positively diagnosed in forty-four persons, twenty-four men and twenty women. The law went into effect Jan. 1, 1936.

Meeting on Obstetrics and Gynecology.—The New England Obstetrical and Gynecological Society will hold its spring meeting in Hartford, April 28. The program will include the following speakers, all of Hartford:

Dr. William P. Daly, Transperitoneal Cesarean Section.
Dr. James F. Lynch, Etiology of Breast Tumor from an Endocrinologic Viewpoint.
Dr. Richard C. Buckley, Cerebral Neoplasms as a Complication of Pregnancy.
Dr. Stanley B. Weld, Fibroma of Ovary with Ascites and Pleural Effusion.
Dr. Thomas N. Hepburn, Operation for Prolapse of the Urethra.

Thomas H. Bissonnette, Ph.D., J. Pierpont Morgan professor of biology, Trinity College, Hartford, will be the dinner speaker; his subject will be "Sexual Photoperiodicity in Animals."

Gifts to Yale University.—Gifts amounting to about $170,000 were announced February 23 by the Yale University Corporation. They included $67,916 from the Rockefeller Foundation for immediate use in the university for research and publication, $6,750 from the Josiah Macy Jr. Foundation for medical science research, $8,459.57 from the Rockefeller Foundation for research in the medical school, $4,900 from the Carnegie Corporation of New York City for photomicrography, and $2,500 from Jeremiah Milbank of New York for poliomyelitis research.

FLORIDA

Society News.—Dr. Benjamin Jablons, New York, addressed a joint meeting of the Brevard, Duval, Orange, Seminole, St. Johns and Volusia county medical societies, April 13, on "Treatment of Nephritis and Its Complications with Tubulin (A New Principle Derived from Mammalian Kidney)."

State Medical Election.—Dr. William H. Spiers, Orlando, was chosen president-elect of the Florida Medical Association at its recent annual meeting in St. Petersburg, and Dr. Edward Jelks, Jacksonville, was inducted into the presidency. Other officers are Drs. Norval M. Marr, St. Petersburg; Reuben N. Burch, Miami, and George L. Cook, Tampa, vice presidents, and Dr. Shaler A. Richardson, Jacksonville, secretary, reelected. The next annual session will be held in Miami.

GEORGIA

Gift to Chinese Medical Students.—Dr. Theodore B. Davis, Newnan, has given his collection of instruments and medical books, accumulated during his fifty-six years of practice, to Dr. Fred P. Manget, for many years a medical missionary in Huchow, China, for the use of students in Dr. Manget's hospital. Newspapers stated that the gift marks the retirement of Dr. Davis from active practice.

Fulton County Meetings.—Dr. James J. Clark, Atlanta, presented a paper before the Fulton County Medical Society, April 1, entitled "The Roentgenological Treatment of the Leukemic States." Dr. Joseph Yampolsky, Atlanta, discussed "Acute Hemorrhagic Nephritis in Negro Children with Special Emphasis on Treatment" before the society, March 18, among other speakers; Dr. John D. Martin Jr., Atlanta, discussed "Congenital Anomalies of the Small Intestine," March 4, and Dr. Christian P. Segard, Leonia, N. J., addressed the pediatric section, March 11, on "Recent Studies in Nutrition with Special Reference to Vitamins and Catalysts."

ILLINOIS

Venereal Disease Clinics.—The first of a series of clinics to be used in venereal disease control was opened in Cairo April 1 by the state health department. Although treatment will be available only to persons unable to pay, a generalized campaign will be centered at the clinic. Financed jointly by the local and state governments, the clinic at Cairo will be under the direct supervision of Dr. Charles L. Weber, city health officer, while a governing board of three citizens and an advisory board of sixteen, representing all civic and professional interests, will determine the policies and direct the program. Blood tests will be made free of charge for any person desiring them. It is expected that eleven clinics will be established throughout the state before July 1. The establishment of these clinics is a part of the state's participation in the national campaign against venereal disease.

Chicago

Personal—Dr. Gaius E. Harmon, epidemiologist with the Chicago board of health, has resigned to accept a similar position with the Detroit Department of Health.

Society News.—Dr. David O. N. Lindberg, Decatur, discussed "The Mantoux Test: Interpretation in Infection and Disease" before the Chicago Tuberculosis Society, April 15. ——At a meeting of the Chicago Pathological Society, April 12, Dr. Dallas B. Phemister spoke, among others, on "Composition of Gallstones Formed in the Common Duct."——Dr. Hans H. F. Reese, Madison, Wis., addressed the Chicago Neurological Society, April 15, among others, on "Insulin Shock Therapy of Schizophrenia."——Roentgenographic examination in obstetrics was discussed before the Chicago Gynecological Society, April 16, by Drs. Robert P. Ball and Howard C. Moloy, New York, and Paul C. Hodges and Adolph Hartung, Chicago.——Dr. Florimond J. LeBlanc addressed the McDonagh Society for Clinical Research, April 16, on "Oxidation and Reduction in Colloidal Chemistry."——The Chicago Ophthalmological Society, among other speakers, was addressed, April 19, by Drs. Theodore E. Walsh on "Some Results of Intranasal Dacryocystotomy in Dacryocystitis" and Raymond Carmody, "Ophthalmoplegia and Exophthalmos as a Complication of Herpes Zoster Ophthalmicus."——Dr. George Halperin addressed the Jewish Physicians Fellowship Club of Chicago, April 12, on "Educational Trends in the U. S. S. R."

INDIANA

Surveys at Central State Hospital.—Two surveys are under way at the Central State Hospital, Indianapolis, one on the causes of dementia praecox and the other on the treatment of neurosyphilis. The former is being conducted by the National Committee on Mental Hygiene under a grant from the Supreme Council of Thirty-Third Degree Scottish Rite Masons, Northern Jurisdiction, while the second is under the auspices of the U. S. Public Health Service, it is reported.

Joint Meeting on Tuberculosis.—The Indianapolis Medical Society and the Indiana Tuberculosis Association held a joint meeting in Indianapolis, April 13. The speakers included Drs. Sayers J. Miller, director of student health service, Purdue University, La Fayette, on "The Tuberculosis Problem in Universities," and Alfred Friedlander, dean and professor of medicine, University of Cincinnati College of Medicine, "Modern Methods in the Diagnosis of Pulmonary Tuberculosis." The following day the Indiana Trudeau Society met with the state tuberculosis association and the speakers included:

Dr. Oscar O. Miller, Louisville, Ky., Unusual X-Ray Lesions in the Chest.
Dr. Orva T. Kidder, Fort Wayne, Early Diagnosis and Collapse Therapy.
Dr. Charles J. McIntyre, Indianapolis, Two Interesting Cases of Tuberculous Pneumonia.
Dr. James H. Stygall, Indianapolis, Basal Lesions.

Society News.—Dr. Willis C. Campbell, Memphis, discussed "Treatment of Fractures of the Neck of the Femur" before the Fort Wayne Medical Society in Fort Wayne, March 2.——At a meeting of the Fayette-Franklin Medical Society in Connersville, March 9, Dr. Francis X. Siegel, Cincinnati, spoke on common diseases and injuries of the eye.—— The Floyd County Medical Society was addressed in New Albany, March 12, by Dr. Harry E. Voyles, New Albany, on diagnosis of gallbladder disease.——Dr. Frank C. Walker, Indianapolis, discussed "Causes of Vaginal Discharge and Their Treatment" before the Wayne-Union Counties Medical Society, Richmond, March 21.——Dr. Clyde G. Culbertson, chief of the bacteriologic laboratory of the state board of health, discussed the mechanism of agglutination and isohemagglutinins before the Indianapolis Society of Medical Technologists, February 24.——Dr. John R. Brayton, Indianapolis, discussed common skin diseases and their treatment before the Jay County Medical Society at Portland, March 5.

IOWA

Personal.—Dr. Regnar M. Sorenson, Washington, has been appointed medical director of the recently organized health district number 1, succeeding Dr. William M. Trotter, Maxwell. The district comprises the counties of Lyon, Osceola, Sioux, Plymouth, O'Brien and Cherokee.——Dr. Arthur C. Schach, Burlington, has resigned as director of the Des Moines County health unit.

Lectures on Nutrition.—Dr. William Weston, Columbia, S. C., addressed the Des Moines Academy of Medicine and the Polk County Medical Society in Des Moines, April 7, on "Rôle of Iodine in Nutrition." He discussed "General Problems in American Nutrition" before the Linn County Medical Society in Cedar Rapids, April 8, and "Adulterated and Deficient Foods" before the Iowa-Illinois District Medical Society, Rock Island, Ill., April 9.

State Department Has Serum Center.—The Iowa State Department of Health recently established a serum center in Des Moines and began the processing of convalescent scarlet fever serum February 20. At regular intervals since September 1936 clinics have been held in Sioux City, Waterloo, Decorah and Des Moines to obtain blood from convalescent scarlet fever patients. For some time the state department of health had been distributing convalescent serum to physicians through the cooperation of the Samuel Deutsch Serum Center at Michael Reese Hospital, Chicago.

KANSAS

New Health Officers.—The following health officers have recently been appointed:

Dr. J. Carroll Montgomery, Wichita, of Sedgwick County.
Dr. Lloyd H. Sarchet, Wellington, Sumner County.
Dr. Frederick E. Dargatz, Kinsley, Edwards County.
Dr. Earl R. Beiderwell, Belleville, Republic County.
Dr. Spencer B. Dykes, Esbon, Jewell County.
Dr. Edgar M. Sutton, Salina, Saline County.
Dr. Willis L. Jacobus, Ottawa, Franklin County.
Dr. Richard F. Boyd, Cimarron, Gray County.
Dr. John G. Swails, Wathena, Doniphan County.
Dr. Ernest C. Moser, Holton, Jackson County.

Dr. Guy B. McIlvain has been appointed city health officer of Clay Center to succeed the late Dr. Robert Algie. Dr. Laurence F. Steffen, St. Marys, has been placed in charge of the newly created full time health unit in Butler County.

KENTUCKY

Personal.—Dr. Earl L. White, U. S. Public Health Service, has been appointed health officer of Crittenden County with headquarters at Marion.——Dr. Joseph M. Ferguson has resigned as medical officer in charge of the Veterans' Administration Facility at Lexington, Ky., because of ill health. Dr. Letcher E. Trent, chief medical officer of the facility at Roanoke, Va., has been transferred to Lexington.

Pediatric Course in Louisville.—A graduate course in diseases of children will be offered at the Children's Free Hospital, Louisville, beginning April 28 and continuing each Wednesday for ten weeks. Members of the staff will discuss interesting cases in the hospital and new methods of treatment will be demonstrated. The course is sponsored by the Kentucky State Medical Association. There will be a charge of $5. Further information may be obtained from Dr. Philip F. Barbour, Heyburn Building, Louisville.

LOUISIANA

Society News.—At a meeting of the Third District Medical Society in Breaux Bridge, March 4, Drs. Howard R. Mahorner and John G. Pratt, both of New Orleans, discussed management of goiter and the importance of diagnosis in hematuria.——The Tri-Parish Medical Society was addressed in Lake Providence, March 2, by Dr. Guy L. Odom, Jackson, among others, on "General Paralysis of the Insane and the Treatment by Means of Artificial Fever Therapy."

Director of Extension Teaching Appointed.—Dr. Maxwell E. Lapham, Jackson, Miss., has been appointed director of the department of extension graduate teaching at Tulane University, New Orleans, it is reported. He has also been made assistant professor in the graduate school of medicine and the medical school. Dr. Lapham is 36 years of age. In 1925 he graduated from the University of Pennsylvania School of Medicine, Philadelphia, where he served as instructor in obstetrics. In 1932 he was appointed clinical instructor in antepartum and postpartum work to conduct courses for practicing physicians under the auspices of the Medical Society of Virginia, the Medical College of Virginia and the University of Virginia. In 1935 Dr. Lapham joined the staff of the Mississippi State Board of Health to direct a graduate course of obstetrics throughout the state. This program was financed cooperatively by the Commonwealth Fund, the Mississippi State Medical Association, the state board of health and Tulane University School of Medicine.

MAINE

Lectures on Obstetrics.—The division of child hygiene of the state department of health is sponsoring three programs before the Oxford County Medical Association, the first of which was held in Rumford, March 17. The lecturers were Drs. Roland B. Moore and Thomas A. Foster, both of Portland, and the subjects covered antepartum care and normal delivery; motion picture films on the new-born were shown by Dr. Herbert R. Kobes, Augusta, under whose supervision the programs are being offered. The second in the series was to be held in April and the third in May.

MARYLAND

Society News.—Frank W. Notestein, Ph.D., lecturer, School of Public and International Affairs, Princeton University, Princeton, N. J., gave one of the De Lamar lectures in hygiene at Johns Hopkins University School of Hygiene and Public Health, April 6. His subject was "Differences in the Fertility of Important Classes of the Population."

Increase in Communicable Diseases.—There were 47,264 cases of "notifiable" diseases reported to the Maryland State Department of Health in 1936 as compared with 39,487 in 1935. The city of Baltimore reported a total of 29,173, and the counties of the state 18,091. Increases were noted for measles with a total of 7,600 cases as compared with about 2,350 in 1935; 4,348 cases of whooping cough as compared with 1,621 in 1935, and venereal diseases, 12,464 as against 11,985 in the previous year. Meningitis increased from 297 cases in 1935 to 476 in 1936, while typhoid dropped from 483 in 1935 to 269 in 1936. Decreases were also noted for tuberculosis from 3,063 in 1935 to 2,759 in 1936, scarlet fever from 3,693 in 1935 to 2,728 in 1936 and poliomyelitis from 107 in 1935 to thirty-seven in 1936. More than nine tenths of the sickness from communicable diseases reported in the state in 1936 was divided among the venereal diseases, including 9,433 cases of syphilis, which accounted for 25 per cent of the total; children's diseases with 25,338 cases, or more than 50 per cent of the total; the pneumonias with 3,300 cases, tuberculosis with 2,759 and influenza with 822 cases accounted for 15 per cent of the total illness.

MASSACHUSETTS

Hospital News.—The Massachusetts Hospital Association was made permanent February 25, when a constitution and by-laws were approved. The association was organized on a temporary basis a year ago. The officers chosen then were unanimously reelected at the recent meeting: Dr. Henry M. Pollock, Boston, president; Bertha W. Allen, R.N., vice president; Rev. Warren F. Cook, secretary-treasurer, and Dr. Norman C. Baker, Boston, secretary.

Society News.—Dr. Frank A. Pemberton, Boston, addressed the Pentucket Association of Physicians in Haverhill, April 8, on "Progress in Gynecology." Dr. Howard M. Clute, Boston, discussed "Problems of the Upper Part of the Abdomen" before the society March 11.——At a meeting of the Neisserian Medical Society of Massachusetts in Boston, March 31, Dr. Nels A. Nelson, Boston, discussed the "Treatment of Gonorrhea in the Male."——A tag day was held in Boston, March 27, as part of the state campaign for cancer control which is being conducted under the auspices of the Women's Field Army of the American Society for the Control of Cancer.

Memorial to Dr. Clapp.—A memorial tablet in honor of the late Dr. Frank H. Clapp was unveiled March 20 at the Nelson Memorial Library, North Grafton, by Barbara Sanford, his granddaughter. The speakers included Dr. Harlan L. Paine, superintendent of the Grafton State Hospital; Mr. Isidore O. Senecal, president of the Maroon Club, who sponsored the idea of the memorial tablet; Dr. Roy J. Ward, president of the Worcester District Medical Society, and Dr. Enos H. Bigelow, Framingham, formerly president of the Massachusetts Medical Society. Dr. Clapp was for many years a member of the school committee and board of health of North Grafton. He died Feb. 26, 1936, aged 74.

MINNESOTA

State Medical Meeting at St. Paul, May 2-5.—The eighty-fourth annual meeting of the Minnesota State Medical Association will be held at the St. Paul Auditorium, St. Paul, May 2-5, under the presidency of Dr. Alfred W. Adson, Rochester. Sunday the house of delegates will be addressed by Drs. Edward H. Skinner, Kansas City, on "How the Kansas City Profession is Meeting Social Security Problems," and Olin West, Secretary and General Manager, American Medical Association, Chicago, "'Better Health' Activities." The Russell D. Carman Memorial Lecture will be delivered Monday morning by Dr. Skinner on "Reflections upon the Roentgenology of Fractures." The Citizens Aid Society Memorial Address will also be presented Monday morning. The speaker will be Dr. Robert S. Stone, associate professor of roentgenology, University of California Medical School, San Francisco, on "Irradiation Therapy of Tumors with a Consideration of the Possibility of Supervoltage X-Rays." Monday there will be a Congress of Allied Professions, in which nurses, dentists, pharmacists, hospital executives and social workers will consider factors involved in distribution of medical care. At the evening session the following speakers will discuss "Suggested Solutions of America's Health Problems":

Rev. Alphonse M. Schwitalla, S.J., dean, St. Louis University School of Medicine.
Dr. Martha M. Eliot, assistant chief of the Children's Bureau, U. S. Department of Labor, Washington, D. C.
C. Rufus Rorem, Chicago, Ph.D., director, committee on hospital service, American Hospital Association.
Dr. Maxwell J. Lick, Erie, Pa., president of the Medical Society of the State of Pennsylvania.

At a public health meeting Tuesday evening the speakers will be Father Schwitalla on "The Child and the Physician"; Dr. Nathan B. Van Etten, New York, Speaker of the House of Delegates, American Medical Association, "The Medical Citizen"; Dr. Raymond A. Vonderlehr, Washington, D. C., U. S. Public Health Service, "What the Public Can Do in the Present Campaign for Control of Syphilis," and Dr. Walter C. Alvarez, Rochester, "Quacks I Have Met." The following lectures will also be delivered by guest speakers during the meeting:

Dr. John M. Wheeler, New York, professor of ophthalmology, Columbia University College of Physicians and Surgeons, New York, Important Injuries About the Eye.
Dr. Francis D. Murphy, clinical professor and director of the department of medicine, Marquette University School of Medicine, Milwaukee, Hypertensive Heart Disease—Its Clinical-Pathologic Manifestations.
Dr. Lick, The Doctor Looks at Social Security.
Dr. Van Etten, Medical Care for All Americans.
Theodore Christianson, Minneapolis, former governor of Minnesota.

In addition to these special features, which include also a Northwest Industrial Medical Conference, Wednesday, papers will be presented by many Minnesota physicians. The woman's auxiliary will hold its annual meeting during the week.

NEW MEXICO

Head of Child Health Division Appointed.—Dr. Hester B. Curtis has been appointed to take charge of the division of child health in the Bureau of Public Health. Dr. Curtis graduated from Yale University School of Medicine in 1932 and was a student at the Harvard School of Public Health, 1935-1936. At the time of her appointment she was associated with the New York State Department of Health, Albany.

NEW YORK

Society News.—The Westchester Society of Gastro-Enterology was organized recently with Drs. Frederic M. Johnson, Yonkers, as president, and Vera L. Collins, Yonkers, secretary. This is the tenth affiliated chapter of the National Society for the Advancement of Gastro-Enterology.——The Academy of Stomatology of Eastern New York was recently organized and held its first scientific meeting in Albany, March 4. The speakers were Dr. Joseph Jordan Eller, New York, on "Dermatologic Lesions of the Mouth and Lip"; Harry Gullifer, D.D.S., Boston, "The Adamantinomas of the Jaw," and Dr. Hayes E. Martin, New York, "Diagnosis and Treatment of Intra-Oral Cancer."——Drs. Isabel Knowlton and Harriet McIntosh, New York, addressed a meeting of the council of the Woman's Medical Society of New York State recently in New York City. Guests of honor were Drs. Maude E. S. Abbott, formerly assistant professor of medicine and curator of the Museum of the History of Medicine at McGill University, Montreal, and Mabel M. Akin, Portland, Ore.

New York City

Personal.—Dr. Adolph G. G. De Sanctis was honored by a dinner, March 14, at the Hotel Ambassador, given by the Association of Italian Physicians in America, marking his accession to the presidency of the Medical Society of the County of New York.

Biggs Memorial Lecture.—The twelfth Hermann Michael Biggs Memorial Lecture of the New York Academy of Medicine was delivered April 1 by Henry C. Sherman, Ph.D., Mitchill professor of chemistry, Columbia University. His subject was "The Bearing of the Results of Recent Studies in Nutrition on Health and Length of Life."

Society News.—Drs. Harry Wessler, New York, and Carleton B. Peirce, Ann Arbor, Mich., addressed the New York Roentgen Society, March 15, on "Pathogenesis of Tuberculosis" and "The Oblique Projection of the Thorax; An Anatomic and Roentgenologic Study," respectively.——Drs. Russell S. Boles and Clifford B. Lull, Philadelphia, addressed the Medical Society of the County of Kings, March 16, on "Hepatic Cirrhosis" and "The Hemorrhages of Pregnancy," respectively.——The Brooklyn Thoracic Society heard a discussion, March 19, of "An Antigen for the Determination of Activity in Tuberculosis," by Drs. Benjamin Gruskin, Philadelphia, Richard H. Bennett, Emanuel Schwartz and Alexander L. Louria.——A symposium on hernia was presented at a meeting of the New York Surgical Society, March 24; the speakers were Drs. Roderick V. Grace, Vansel S. Johnson, Bradley L. Coley, Carl G. Burdick, David H. M. Gillespie, Norman L. Higinbotham and Allen O. Whipple.

NORTH CAROLINA

State Medical Meeting at Winston-Salem.—The eighty-fourth annual session of the Medical Society of the State of North Carolina will be held at Winston-Salem, May 3-5, under the presidency of Dr. Charles F. Strosnider, Goldsboro. The guest speakers who will address general and sectional meetings include:

Dr. Arthur M. Shipley, Baltimore, The Biliary Duct Apparatus as a Surgical Problem.
Dr. Algernon B. Reese, New York, The Operative Treatment of Primary Glaucoma.
Dr. Edward A. Schumann, Philadelphia, Leaves from a Gynecologist's Notebook.
Dr. David M. Davis, Philadelphia, Syphilis and Gonorrhea as Public Health Problems.
Dr. John A. Ferrell, New York, Experimental Approaches Under Way Toward More Efficient Public Health Administration.
Dr. Thomas A. Shallow, Philadelphia, The Surgical Approach to Foreign Bodies in the Gastro-Intestinal Tract.

The woman's auxiliary will hold its annual meeting during the week and the North Carolina Public Health Association will meet Monday May 3. Tuesday evening there will be a testimonial dinner to Dr. Louis B. McBrayer, Southern Pines, secretary of the society for many years, followed by the president's reception. Headquarters will be at the Robert E. Lee Hotel.

OHIO

Personal.—Dr. Millard C. Hanson, health officer of Mansfield, has been appointed health officer of Toledo, effective April 15.——Dr. Edward O. Morrow, Canton, was recently honored by a testimonial dinner given by the Stark County Medical Society, celebrating his fiftieth anniversary in the practice of medicine.——Dr. Herbert E. Koepke, Cadiz, has been appointed health commissioner of Harrison County, and Dr. William Edward Blair, Lebanon, of Warren County.——Dr. Stewart G. Patton, North Jackson, has been appointed health officer of Mahoning County to succeed Dr. George Y. Davis, Youngstown.

PENNSYLVANIA

Society News.—Dr. Martin E. Rehfuss, Philadelphia, addressed the Cambria County Medical Society, Johnstown, April 8, on "Diagnostic Problems in Gastro-Enterology."——Dr. Charles L. Brown, Philadelphia, addressed the Lackawanna County Medical Society, Scranton, March 30, on hypertension. Dr. Dean D. Lewis, Baltimore, spoke March 15 on tumors of bone.——Dr. Grover C. Weil, Pittsburgh, addressed the Medical Society of Franklin County, Waynesboro, March 19, on compound fractures.——Dr. Franklin Howard Westcott, New York, addressed the Lebanon County Medical Society, Lebanon, April 13, on "Allergy in General Practice with Treatment of Pollinosis and Pollen Asthma."——Dr. Vincent T. Curtin, Scranton, addressed the Northampton County Medical Society, Easton, April 16, on "Fads and Fancies of Infant Feeding."——Dr. Frank A. Evans, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 1, on "Treatment of Psychoneurosis in General Practice."

Philadelphia

Personal.—Dr. Louis Lehrfeld has resigned as epidemiologist of the Philadelphia Department of Public Health after twenty-two years' service. Dr. Lehrfeld has been appointed attending surgeon to the Wills Eye Hospital to fill the vacancy caused by the resignation of Dr. Francis Heed Adler, recently appointed professor of ophthalmology at the University of Pennsylvania School of Medicine.——Drs. Isidor P. Strittmatter, Arthur C. Morgan and Thomas R. Currie were guests of honor at the annual dinner of the Northern Medical Association, the oldest medical society in Philadelphia, March 15. The association is 91 years old. Dr. Strittmatter was unable to attend the dinner because of illness.——Dr. Frank C. Hammond, dean emeritus of Temple University School of Medicine, was the guest of honor at a dinner given by the Hammond Pre-Medical Society, March 8, in honor of his sixty-second birthday. Dr. Charles L. Brown, professor of medicine, was the principal speaker.——Dr. Garfield G. Duncan has been appointed chief of service at the Pennsylvania Hospital, filling the vacancy made by the death of Dr. Thomas McCrae in June 1935.——Dr. Joseph C. Doane has been elected an associate editor of the *Pennsylvania Medical Journal.*

SOUTH CAROLINA

Yellow Fever Volunteer Dies.—Charles G. Sonntag of Jackson, one of the volunteers who submitted to inoculation with yellow fever through mosquito bites in the experiment conducted by Major Walter Reed in Cuba in 1900-1902, recently died at the age of 64. Sonntag took yellow fever but survived and has been a farmer for many years. In 1931 he received a gold medal authorized by Congress in recognition of his service in the yellow fever experiment.

TENNESSEE

Personal.—Dr. Milton W. Williamson, Redboiling Springs, recently associated with the Kentucky State Board of Health and formerly with the U. S. Public Health Service, has been appointed associate city health director of Chattanooga.——Dr. Joseph C. Tatum, Waverly, has resigned as health officer of Humphreys County to become health officer of Giles County, succeeding Dr. John U. Speer.——Dr. Robert Knox Galloway, recently health officer of Williamson County and city health officer of Franklin, has been appointed director of health and hygiene in the public schools of Nashville, it is reported.——Dr. Waller S. Leathers, dean and professor of preventive medicine and public health, Vanderbilt University School of Medicine, Nashville, has been reappointed a member of the National Advisory Health Council of the U. S. Public Health Service.——Dr. Edward L. Turner, recently professor of internal medicine in the American University, Beirut, Syria, has been appointed professor and head of the department of medicine at Meharry Medical College, Nashville.

VIRGINIA

Social Work Conference.—The division of public health and medical care of the Virginia Conference of Social Work, of which Dr. Basil B. Jones, Richmond, is chairman, arranged a program on syphilis at the annual meeting of the conference in Richmond April 8-10. Among the speakers were Drs. Dudley C. Smith, Charlottesville; Kinloch Nelson, Richmond; Thomas L. Gemmill, Petersburg; Lonsdale J. Roper, state department of health, Richmond; Ennion S. Williams, Richmond, and Mrs. Norman Ingraham, social worker, University of Pennsylvania Hospital, Philadelphia. The Virginia Mental Hygiene Society also sponsored a program on which the speakers included Drs. Howard R. Masters, Richmond, and David C. Wilson, Charlottesville.

WEST VIRGINIA

Society News.—Dr. Leo Huth, Follansbee, addressed the Brooke County Medical Society, Wellsburg, March 10, on a new method of administering scopolamine in Parkinson's disease.——Dr. John C. Matthews, Huntington, addressed the Kanawha Medical Society, Charleston, March 9, on "Treatment of Gonorrhea in the Male" and Dr. Hugh B. Robins, Charleston, on "Syphilis and Its Social Problem."——At a meeting of the Logan County Medical Society, Logan, March 10, Dr. Walter W. Point, Charleston, spoke on complications of pregnancy and Dr. Andrew E. Amick, Charleston, on child health and social security.——Dr. Will A. Quimby, Wheeling, addressed the Marshall County Medical Society, March 9, in Moundsville, on prevention and treatment of cancer.

GENERAL

Resolution Defines Adequate Diagnosis of Eye Disease.—A resolution adopted at a meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association in New Orleans, February 23, reads in part as follows:

> That it is the sense of the Joint Committee on Health Problems in Education and the American Medical Association . . . that the safety of the eyes of school children, the adequate diagnosis of disease and the correct fitting of glasses require examination of children's eyes (beyond rough visual tests performed by teachers or nurses) by a licensed doctor of medicine and, upon his recommendation, by a medical specialist in diseases of the eye, properly known as an oculist or ophthalmologist.

Board to Recommend Health Officers.—A special board has been appointed to advise the United States Conference of Mayors in the appointment of public health officers. Dr. Joseph W. Mountin of the U. S. Public Health Service is chairman of the board; other members are Drs. Allen W. Freeman, dean of the Johns Hopkins University School of Hygiene and Public Health, Baltimore; Wilson G. Smillie, professor of public health administration in the Harvard School of Public Health and recently appointed professor of public health and preventive medicine at Cornell University Medical College, New York; Huntington Williams, health commissioner of Baltimore, and John L. Rice, health commissioner of New York.

National Academy of Sciences.—The National Academy of Sciences will hold its annual spring meeting in Washington, April 26-27. Among the papers of medical interest to be presented are:

Dr. Simon Flexner, New York, Immunity and Reinfection in Experimental Poliomyelitis.
Dr. Howard W. Haggard and Leon A. Greenberg, Ph.B., New Haven, Conn., The Effects of Alcohol as Influenced by Blood Sugar.
Dr. George H. Whipple, Rochester, N. Y., The Romance of Hemoglobin.
Dr. Francis G. Benedict and Robert C. Lee, Boston, Body Fat as a Factor in Heat Production.
Edmund Newton Harvey, Ph.D., Alfred L. Loomis, LL.B., and Garret A. Hobart III, Princeton, N. J., and Loomis Laboratory, Tuxedo Park, N. Y., Cerebral Processes During Sleep as Studied by Human Brain Potentials.
Robley D. Evans, Cambridge, Mass., Elimination of Radium Impurities from the Blood Stream.

Association on Mental Deficiency.—The sixty-first annual convention of the American Association on Mental Deficiency will be held at Atlantic City, May 5-8, with headquarters at Haddon Hall. Among the speakers on the program will be:

Dr. I. Newton Kugelmass, New York, Management of Epilepsy in Children.
Dr. Frank V. Willhite, Redfield, S. D., A Program for the Social Control of the Mentally Deficient.
Dr. George E. McPherson, Belchertown, Mass., Heredity in Mental Deficiency.
Dr. Adrien S. Bleyer, St. Louis, Maternal Age and Mongolism, a Study of 3,000 Cases.
Dr. George A. Jervis, Thiells, N. Y., Inherited Biochemical Deficiencies in Certain Types of Feebleminded.
George Keezer, Ph.D., Vineland, N. J., Electrical Phenomena of the Brain Among the Feebleminded.
Dr. Clarence A. Mills, Cincinnati, Climatic and Weather Factors in the Production and Manifestations of Mental Deficiency.

Meetings in Atlantic City.—The annual informal dinner and general meeting of the American Board of Obstetrics and Gynecology will be held at the Hotel Claridge, Atlantic City, Wednesday evening, June 9. Dr. Charles Gordon Heyd, New York, President of the American Medical Association, will be the principal speaker. Diplomates of the board and others interested in the specialty are invited. Tickets may be obtained at the door at $2 each.——The Alpha Kappa Kappa Medical Fraternity will hold an alumni luncheon at the Hotel Ambassador, Atlantic City, N. J., June 9, at 12:15 p. m. The entire international council of the fraternity will attend.——Phi Delta Epsilon will hold its annual luncheon during the session of the American Medical Association at the Ritz Carlton, Atlantic City, Thursday, June 10.

Meeting on Allergy.—The Society for the Study of Asthma and Allied Conditions will hold its thirteenth annual meeting at the Hotel Chalfonte-Haddon Hall, Atlantic City, May 1. Dr. Milton B. Cohen, Cleveland, president, will speak on "Observations upon the Transmission of Passive Anaphylactic Sensitivity in the Guinea-Pig." Other speakers will include:

Drs. Warren T. Vaughan and Clement J. Sullivan, Richmond, Va., Blood Surface Tension, Sedimentation Rate and Blood Pressure Responses Following the Ingestion of Allergenic Foods.
Drs. James A. Clark Jr. and Howard C. Leopold, Philadelphia, Prophylactic Treatment for Ragweed Hay Fever—A Statistical Study.
Dr. Joseph Harkavy, New York, Biopsy Studies of Skin Reactions to Tobacco in Vascular Disease.
Drs. Robert Chobot, New York, and George H. Hurwitz, Hartford, Conn., Limitations of Passive Transfer in Food Sensitive Children.
Dr. Abner N. Fuchs, New York, The Interruption of the Asthma Crisis by Tribromethanol (Avertin).

Dr. Alphonse R. Dochez, professor of medicine, Columbia University College of Physicians and Surgeons, New York, will address the annual dinner Saturday evening on "Studies of Upper Respiratory Tract Infection."

International Congress of Radiology.—Special courses in certain fields of radiology are to be offered during the fifth International Congress of Radiology, to be held in Chicago, September 13-17. Lectures will be given each morning of the congress for one hour. The lecturers and their subjects are:

Dr. Henri Coutard, Paris, Roentgen Therapy in Cancer.
Dr. George W. Holmes, Boston, Problems in Roentgenologic Diagnosis.
Dr. Hermann Holthusen, Hamburg, Germany, Fundamentals of Roentgen and Radium Therapy.
Dr. Byrl R. Kirklin, Rochester, Minn., Roentgen Diagnosis in Gastro-Enterology.
Dr. Edwin A. Merritt, Washington, D. C., Special Problems of Radiation Therapy Relating Especially to Treatment of Cancer of the Cervix and Breast.
Dr. Merrill C. Sosman, Boston, Diagnosis of Brain Lesions.
James L. Weatherwax, A.M., Philadelphia, Elementary Physics of Radiation.

Each of the courses will be given in English and will be open to between fifty and a hundred members, who will register for the specific course desired. Those who have already applied for membership in the congress may register by writing to the General Secretary, 2561 North Clark Street, Chicago; those who apply hereafter may register when they submit their applications for membership. It is desired that registration be made as soon as possible. There will be no extra charge for these courses. Complete papers to be presented at the meeting must be in the hands of the secretary by May 1 to allow time for translation and publication.

Government Services

Surgeon General Rossiter Reappointed

Rear Admiral Perceval S. Rossiter has been reappointed surgeon general of the U. S. Navy, following his completion of four years in the office. Dr. Rossiter will reach the statutory age for retirement Nov. 30, 1938. He graduated from the University of Maryland School of Medicine, Baltimore, in 1895 and has been associated with the service since 1903. Dr. Rossiter is now president of the Association of Military Surgeons of the United States and Canada.

Health of the Navy

Striking improvement in the health of the navy was recorded in the annual report of the Bureau of Medicine and Surgery, which covers important activities of the fiscal year 1935-1936 and detailed statistics of diseases and injuries for the calendar year 1935.

There were 51,746 admissions for all causes during 1935, a decrease of 13 per cent from 1934, attributed principally to a decrease in venereal diseases and a low incidence of communicable diseases. Only two of the twenty-seven classes in the nomenclature of diseases and injuries showed percentage increases: all the rest showed decreases ranging from 0.45 for diseases of the mind to 75 per cent for communicable diseases transmissible by intestinal discharges.

Acute catarrhal fever, the navy's designation for the common cold, caused 21.25 per cent of the total admissions, first among single causes of admission. The rate was 8,299 per hundred thousand, compared with 9,974 in 1934. There were 200 admissions for influenza, compared with 432 in the previous year.

Venereal diseases occupied second place among all causes of morbidity and for the third consecutive year showed a decrease from the rate recorded the preceding year. These diseases were responsible for 16.48 per cent of all admissions. The rate was 74.7 per thousand, which was 17.26 per cent less than the rate for 1934 and 44.10 per cent less than the median rate for the five-year period 1930-1934. Gonococcic infection of the urethra caused 13.03 per cent of all admissions and syphilis 3.6 per cent.

There were 220 cases of diseases transmissible by insects and other arthropods, including 147 of malaria, sixty-three of dengue, six of typhus and four of filariasis. Among diseases transmissible by intestinal discharges were thirty cases of amebic dysentery, nine of paratyphoid, six of bacillary dysentery and five of typhoid.

Acute appendicitis caused 1,058 admissions to sick list, second in frequency among diseases of the digestive system, first in number of sick days per case. Acute gastro-enteritis was first in frequency, with 1,081 cases, but only 4.8 sick days per case. Diseases of the ear, nose and throat accounted for 6.9 per cent of the admissions; diseases of the eye, 1.3 per cent; diseases of the genito-urinary system (nonvenereal), 1.8 per cent; diseases of the motor system, 1.6 per cent.

There were 215 original admissions for diseases of the nervous system and 256 for diseases of the mind. In the latter group 251 persons were invalided from the service. The largest number of the original admissions was for dementia praecox, fifty-seven.

Among 421 original admissions for diseases of the circulatory system, the largest number was 127 for arterial hypertension. There were 464 admissions for benign and malignant tumors, 292 of which were for cysts. Twelve were for carcinoma. There were 439 admissions for hernia.

The rate of admission to sick list for wounds and injuries in 1935 was 61.84 per thousand, somewhat lower than the rate for the preceding year. This cause was responsible for 13.58 per cent of all admissions. Motor vehicle accidents caused 848, or 12.1 per cent, of all accidental injuries and poisonings; 730 of them were received while the men were on leave or liberty. Athletics and recreative sports caused 1,431 admissions. There were no large disasters, but five accidents causing loss of life or injury were reported.

There were 320 deaths from all causes among the navy personnel of 114,188, giving a rate of 2.8 per thousand as compared with 2.73 for the preceding year and the median rate of 3.35 for the preceding five years. Wounds and injuries caused 163 deaths, diseases 149 and poisonings eight. Forty-three deaths were due to motor vehicle accidents and thirty-three to drowning. There were thirty-six suicides and nine homicides. Diseases of the circulatory system caused thirty-six deaths, pneumonia twenty-two, tuberculosis fourteen, cerebrospinal fever eight and appendicitis five. There were 1,397 persons invalided from the service in 1935.

During the year the naval hospitals at Great Lakes, Ill., and Newport, R. I., were reopened and a general order was issued for creation of the Naval Medical Center at Washington, D. C., to consist of the Naval Hospital, the Naval Medical School and the Naval Dental School. During the year twenty-one naval medical officers completed a six months graduate course in naval medicine at the naval medical school and twenty-six took graduate courses in various universities. The report points out that there is an acute shortage of qualified flight surgeons for the navy. At the end of the fiscal year there were 806 members of the medical corps; twenty-five retired, seven resigned and two died. Fifteen officers were commissioned following an examination in May 1936.

CORRECTION

Primary Friedländer Pneumonia.—In the article by Dr. Saul Solomon in THE JOURNAL, March 20, the sentence beginning at the foot of page 937 and continuing on page 938 should read: "It is aerobic and facultative anaerobic and grows very readily on the ordinary laboratory mediums. In broth there is rapid and abundant growth with turbidity, slimy sediment and pellicle formation."

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 27, 1937.

Report of the Medical Research Council

The report of the Medical Research Council for 1935-1936, which has just been published, describes advances of great interest.

THE MECHANISM OF NERVE TRANSMISSION

The Nobel prize in medicine was awarded in 1936 jointly to Sir Henry Dale, director of the National Institute for Medical Research, and Prof. Otto Loewi of the University of Graz, for their work on the chemical mechanism of nerve transmission. Sir Henry Dale in 1914 became interested in the substance known as acetylcholine, which he found in some samples of ergot. Its potency in stimulating parasympathetic nerve endings and its rapid destruction by hydrolysis suggested the possibility of its physiologic importance. Between 1921 and 1926 a fundamental observation was made on the subject by Professor Loewi. He showed that stimulation of the vagus nerve to a frog's heart liberated a chemical substance, probably acetylcholine, which was itself capable of slowing the heart—the well known effect of vagus stimulation. It seemed as though the vagus acted on the heart by first liberating acetylcholine at the nerve endings. In 1929 an important advance was made when the late Dr. H. W. Dudley, collaborating with Dale, isolated acetylcholine as a normal constituent of an animal organ.

In recent years Dale and his colleagues have studied this problem with much ingenuity. They have shown not only that acetylcholine is the chemical transmitter of the vagus impulse to the heart but also that the same mechanism is responsible for all parasympathetic activities and also for some sympathetic, such as sweat secretion. Acetylcholine was also found to be the effective chemical substance responsible for all nerve transmission, parasympathetic or sympathetic, through ganglions of the autonomic system. In the past year Dale and his colleagues have shown an even wider action—that acetylcholine is the medium through which motor nerve impulses activate voluntary muscle. The results of this brilliant work are at present impossible to foresee. Already it has provided a scientific basis for the discovery by Walker of the action of prostigmin in alleviating myasthenia gravis, and there are indications that some compounds closely allied to acetylcholine, but of greater chemical stability, may have therapeutic importance.

THE VIRUS OF INFLUENZA

The investigations at the National Institute for Medical Research on influenza by Laidlaw, Andrewes, Wilson Smith and Stuart-Harris during the past year have made progress. This work originated in the discovery that an infection diagnosed as influenza in man could be transmitted to ferrets, in which it produced a characteristic feverish and catarrhal condition. This was transmissible to other ferrets, and recovered ferrets were immune for the time against further infection. Later it was found that mice could be infected from ferrets. The infective material from the human nasal mucosa, passed through a fine filter, was still infective when instilled into the ferret's nostril, indicating an ultramicroscopic virus. Here was the foundation of a new experimental method of investigating influenza, which already has yielded important results.

It has been shown that the virus originally isolated at the National Institute for Medical Research has a world-wide diffusion. Francis of the Rockefeller Institute, New York, has isolated strains of the virus from epidemics in Puerto Rico, Philadelphia and Alaska, which were indistinguishable from those obtained by the British workers. This result has been confirmed by Dutch and Russian workers. A further step is the transmission of ferret influenza to man, which dispels the doubts of certain responsible investigators, especially in Germany, as to the connection between human influenza and the disease transmitted to ferrets. They suggested, among other alternatives, that the nasopharyngeal secretions of influenza patients might contain something which was capable of arousing virulence in a virus normally present, in innocuous form, in the nose and throat of the ferret. Soon after the virus was first obtained an attempt to transmit influenza to human volunteers failed, but during 1936 a positive result was obtained by accident. Virus originally obtained from a human case was passed through 196 ferrets in series and was used to infect a batch of ferrets. One of these sneezed violently while being examined by Dr. Stuart-Harris. After forty-five hours a sharp and typical attack of influenza began. Washings from his nasopharynx up to the fourth day were infective both to ferrets and to mice (the first instance in which the latter were directly infected from man). Fortunately a sample of the blood serum of Dr. Stuart-Harris, taken before the attack, was available. This contained no antibody for the virus of human influenza. But there were indications of such antibody early in the attack and by the eighth day, when the symptoms had completely subsided, it was strongly developed and remained so up to the thirty-first day, after which it slowly declined. The production from the virus of a vaccine that will immunize man against influenza is now being intensively studied at the institute.

THE PREVENTION AND TREATMENT OF PUERPERAL FEVER

Puerperal fever due to hemolytic streptococci has been responsible for the deaths annually in this country of 1,200 women in full vigor of life. Two papers published by Dr. Leonard Colebrooke and his colleagues at Queen Charlotte's Hospital, London, strongly suggest that red prontosil (4-sulfonamido-2-4-diaminoazobenzene) has a beneficial action on the infection, although more clinical and laboratory tests are necessary. An additional reason for delaying judgment is that even better results are promised with the colorless substance para-aminobenzene sulfonamide, which is the chemical mother substance of red prontosil. The following figures are instructive. During 1931-1935, 495 patients with puerperal sepsis were admitted to Queen Charlotte's Hospital, of whom 112 died, giving a mortality of 22.7 per cent. In part of 1936, sixty-four cases of puerperal sepsis were treated with red prontosil and "prontosil soluble," of which only three were fatal, a mortality of 4.7 per cent. Apart from the reduction of mortality Dr. Colebrooke has observed two changes for which these chemotherapeutic agents may be responsible. The first is a sudden reduction in the severity of the peritonitis in the cases so treated. As peritonitis has always been regarded as the most dangerous complication, the question arises of the action of the drug. The second change is that no patient has developed a palpable pelvic or abdominopelvic inflammatory mass or abscess after the beginning of the treatment, although this is one of the commonest complications of puerperal infection by hemolytic streptococci. One reason for caution in claiming success for the treatment has been advanced by Colebrooke. There are signs of a general diminution in the severity of puerperal sepsis in this country during the past five years. It is pointed out that we ought not to rely in the first place on curative drugs but on prevention, for which modern investigation suggests two lines. Access of pathogenic organisms to the birth canal must be excluded, especially streptococci associated with sore throat, whether of medical attendants, friends or the patients themselves. Prevention of their transport from the skin or other parts of the body is equally neces-

sary. Secondly, the diet of the pregnant woman should be such as to raise resistance to infection to the highest possible level, by ample consumption of milk, green vegetables and other protective foods.

The Civilian Anti-Gas School

Twenty-nine members of Parliament visited the Civilian Anti-Gas School in Gloucestershire, which is at present the only one of its kind in Great Britain. Another is to be opened soon in Yorkshire. Since the school was opened in April 1936 more than 800 persons, including police, physicians, members of the Red Cross Society and employees of local authorities, have received a fortnight's training in identifying and dealing with various poison gases and in decontamination of affected areas and clothing. They have returned to their own districts to pass on the instruction to others. It is estimated that 35,000 persons in various parts of the country are already proficient in the work of air raid precautions.

In the lecture room of the school the characteristics of the various gases and their effects were explained by Major F. W. Ollis, the chief instructor, with the aid of diagrams and lantern slides. The party was able to test for themselves the efficacy of the civilian respirators in an atmosphere charged with chlorine. Gum boots and blue glasses, for protection of the eyes against the glare of bursting incendiary bombs with a candle power of more than 50,000, were issued. On the outdoor range they were given further demonstrations of gases, high explosives and bombs containing a liquid simulating mustard gas, which gave off a pungent but harmless odor. A bomb was exploded, producing gas which spread over a large area, the cleansing and decontamination of which was demonstrated. This demonstration is only one more example of the thoroughness of the preparations that are being made against air attacks on this country.

PARIS

(From Our Regular Correspondent)

March 26, 1937.

A Difficult Social Insurance Problem

Every worker in France is obliged to be insured, according to the social insurance law, who annually earns up to 18,000 francs ($900). This limit rises to 20,000 francs if the insured has one child less than 16 years of age, to 22,000 francs if he has two, and to 25,000 if he has three children less than 16 years old. An "indigent insured" is a worker who, although insured, has insufficient means to pay for medical care and is then placed on the relief roll of his "collectivity" (city, town). An insured worker ordinarily is obliged to pay all medical costs directly. He then receives illness certificates from the attending physician and the druggist and is reimbursed to the extent of 80 per cent of the outlay by the local caisse or office of the social insurance organization to which he belongs. In the case of an indigent insured, the local relief office pays in full the attending physician's, druggist's and other bills. Up to the present, this local relief bureau has been willing to assume only 20 per cent as its share of medical care of the indigent insured and has maintained that the social insurance local office or caisse should pay the remaining 80 per cent.

The class indigent insured (assurés sociaux notoirement indigènes) was created in the first social insurance act of 1928-1930 and included as such in the recently modified (October 1935) law. This category of indigent insured was defined as "ordinary social insured workers, whose resources are such as to need assistance in case of sickness." Such individuals are then (1) salaried workers obliged to be affiliated to the social insurance law, paying as such the same premiums as other insured workers, and (2) indigents entitled to free medical care and listed as such on the rolls of their local relief bureau. All of the administrative difficulty concerning such indigent insured has been to know which of the two agencies (social insurance or local relief organizations) should be responsible for their medical care. Ought they to be treated as ordinary insured or as indigents entitled to free medical care? In the former case the attending physician could hold the insured responsible for services and was not obliged to sign the sickness certificate until being paid by the insured worker, who in turn was reimbursed by the social insurance bureau. In the case of the indigent insured, the attending physician was not allowed to present a bill for his services to the sick worker but filed a claim with the local relief bureau, which would pay the bill according to a fee table which differed considerably from that of the social insurance office. Now, in addition to this difference, the regulations of the local relief bureau vary also with respect to the number of visits allowed for a given illness, special care or radiography. The paragraph relating to this question of which organization (social insurance or relief) was responsible was not clear in either the original (1928) or the modified (1935) law.

As the result of recent decisions the indigent insured is considered an insured individual and as such is subject to all the obligations of the social insurance law but conserves all its privileges. He is hence considered as an ordinary insured worker, except that as an indigent he is not obliged to pay for medical care. The attending physician is paid directly by the local relief bureau, which in turn is reimbursed to the extent of 80 per cent of such fees by the local social insurance caisse or office. Under ordinary conditions, that is, in the case of nonindigent insured, this 80 per cent represents the sum reimbursed to the insured for medical outlays. The physician's fees will be based on the fee table of the social insurance organization and not on that of the local relief bureau. Thus the indigent insured is considered in the same category as the nonindigent insured, except that the fees for medical care are paid to the extent of 20 per cent by the local relief bureau and 80 per cent by the caisses.

Anuric Form of Hodgkin's Disease

Renal complications in Hodgkin's disease are rare; hence the report of a case of recurrent anuria as a complication as presented by Duvoir and associates at the Dec. 4, 1936, meeting of the Société médicale des hôpitaux is of considerable interest. A woman, aged 33, was admitted June 4 to the service of Duvoir because of an anuria of twenty-four hours' duration, preceded for several days by a mild rise of temperature, swelling of the inguinal lymph nodes and slight edema round the ankle joints, but no pain. There was an absence of a history of chronic nephritis and of the ingestion of any drug that could have been followed by anuria. Examination revealed the presence of a generalized adenopathy involving the regional superficial lymph nodes almost exclusively and those of the thorax or abdomen a little. The spleen was enlarged and firm. On questioning the patient it was learned that she had been given irradiation during the preceding three years for Hodgkin's disease. The hematologic formula was that of a chronic neutrophil polynucleosis. The blood urea content was 155 mg. per hundred cubic centimeters at the time of admission. Only 20 cc. of urine could be obtained on catheterization, and it showed a trace of albumin but no casts or light refracting bodies.

Based on the history of irradiation for Hodgkin's disease and the presence of generalized adenopathy, the anuria was believed to be related to the preexisting malignant lymphogranulomatosis. In spite of the administration of dextrose solutions, diuretics and high voltage roentgen therapy over the lumbar regions, uremic symptoms appeared four days after admission but receded after continuation of the irradiation and

reestablishment of the urinary secretion. The patient was discharged July 6 but returned August 3 because of a recurrence of the anuria of thirty-six hours' duration. The blood examination gave similar results to those on admission in June. Irradiation of the lumbar regions, without any other treatment, was followed after an interval of forty-eight hours by ample urinary secretion, but twenty-four hours later the anuria reappeared but lasted only a day, followed by a polyuria and apparent recovery.

This is the first report of a case of anuria during the course of a malignant lymphogranulomatosis, although transitory albuminuria and marked edema have been reported by Ziegler, Clement, Crouzon and Stoerk. The authors believed that there were two possible mechanisms to explain the anuria, either compression of the renal pedicles by enlarged lymph nodes or lymphogranulomatous infiltration of the renal parenchyma. Proof is still lacking as to which of these two to accept as an explanation of the anuria.

Chronic Nephritis in Children with Disturbances of Growth

Two interesting cases illustrating how chronic nephritis can retard development were reported at the January 8 meeting of the Société médicale des hôpitaux by Debré and his associates. The clinical symptoms polydipsia, polyuria, disturbance of glucide metabolism and arrest of development were all latent. The latency of the nephritis was so marked that over a period of several years frequent urinalyses failed to reveal the presence of albumin and the blood pressure was always found normal. The striking feature of the polydipsia was that it was the principal symptom and thus rendered difficult a differential diagnosis from diabetes insipidus in children. This was the diagnosis when the two patients were first seen. The disturbance in glucide metabolism in one of the children assumed the form of a slight intermittent glycosuria with a blood sugar quite similar to that found in diabetes mellitus. The retardation in growth was also very striking in both children. The chief and constant characteristics of certain forms of chronic nephritis in children are, therefore, dwarfism, polydipsia and polyuria. Other less constant features are disturbances in the metabolism of glucides and lipoids as well as late rachitis and at times calcinosis. The clinical picture as a whole represents some form of endocrine disturbance, pointing probably to the hypophyseal origin of the nephritis.

Second International Gastro-Enterologic Congress

The second International Gastro-Enterologic Congress will be held in Paris September 13-15 during the Exposition. The president is Prof. Pierre Duval. The two questions to be discussed are (1) the early diagnosis of gastric cancer (papers by Duval, Gosset, Carnot, Gutmann, Moutier, Garin, Labbé, Bertrand, Gatellier and Charrier of France and Konjetzny, Katsch, Sauerbruch, Buerger, Berg, Henning and Staemmler of Germany) and (2) acute and chronic obstruction of the small intestine (papers by Mogena of Spain, Wilkie of Great Britain, Bottin of Belgium, Krynski of Poland and Felsen of the United States). Only members of the International Society of Gastro-Enterology can take part in discussions.

The International Congress on Hepatic Insufficiency will follow on September 16 and will be held at Vichy. Professor Loeper of Paris is the president of this congress.

Laboratory Diagnosis of Undulant Fever

In the Dec. 5, 1936, issue of the *Progrès médicale* Lisbonne of Montpellier states that undulant fever has been found in sixty-four of the eighty-six departments of France. On account of the protean character of the symptoms, the diagnosis is not easy. Recognition of the causative organism by means of blood cultures is of great aid to the public health officer but even in the most favorable cases requires from eight to ten days, at times even longer, and may prove to be negative in chronic cases. Nevertheless it should be employed as a routine measure at the onset of the disease. The most practical method of diagnosis is agglutination. It can be carried out in various dilutions. A total agglutination with a minimal dilution of 1 in 80 indicates a very active Brucella infection of recent origin. The intensity of the reaction increases progressively in proportion to that of the disease. Wright's serodiagnostic method is often doubtful and may be negative. The Burnet intradermal reaction is a very sensitive method but the long duration of the allergy throws no light on whether the infection is an acute one or is passive and extinct. All these methods are complementary and hence should be used in every case.

International Congress on Artificial Fever Therapy

The following French physicians will take part in the International Congress on Artificial Fever Therapy, which is to be held in New York March 29-31. Their subjects are pyretotherapy, by Professor Abrami; dosage of the temperature, by Prof. Charles Richet; physiology of artificial fever, by Professor Binet; experimental pathology, by Professors Levaditi and Bessemans; artificial fever therapy in psychiatry, by Professor Claude; in syphilis, by Professor Gougerot; in cardiology, by Professor Laubry; in surgery, by Professor Lardennois; in gynecology, by Dr. Dalsace; in ophthalmology, by Dr. Hambresin; in otorhinolaryngology, by Dr. Le Mee; in gonorrheal disorders, by Drs. Janet and Dreyfus.

Dr. Simon Flexner Elected Nonresident Member of Academy

One of the highest honors that can be bestowed on a research worker here is to be elected a French or foreign member of the Academy of Sciences of France. This recognition of the many contributions to microbiology made by Dr. Simon Flexner of the Rockefeller Institute of New York took the form of his election as a nonresident member of the Academy of Sciences at a recent meeting of that body.

BERLIN

(From Our Regular Correspondent)

March 22, 1937.

The Growth of the Sick Insurance Societies

Statistics were published recently on the activities of the sick insurance during the year 1935 (THE JOURNAL, June 27, 1936, p. 2250; Jan. 16, 1937, p. 218). The legally constituted sick insurance societies administered sick benefits in a total of 52,300,000 cases (including dental cases) in 1935. In 34,800,000 instances the patients were the members themselves, in 17,500,000 the patient's relatives. Contrasted with 1934, these figures represent increases of 2,800,000 cases and 2,600,000 cases respectively. For each hundred insured persons there were 185 cases involving members themselves (5.1 per cent more than in 1934) and in addition ninety-three cases involving relatives (an increase of 13.2 per cent). The increase in illness among members as against the previous year is manifestly attributable first of all to the reemployment of older persons and to the greater speeding up of industry. The number of cases involving workers' disabilities increased at a relatively greater rate as against 1934 than the rate of increase of the total number of insurance cases. This is in part due to the fact that working conditions have permanently improved, for in bad times the worker fears that he will not be reemployed if he claims disability, and in part to the influenza epidemic, which in 1935 was more widespread than that of 1934. In each 4.6 cases in which sick benefits were received, one was connected with loss of working capability (in 1934 the propor-

tion was one in each four). The average duration of disability was, however, shorter than in the previous year.

From all the sick insurance, 8,000,000 cases involving loss of working capability were reported in 1935 (against 6,800,000 cases in 1934) and 184,500,000 working days were lost through disability (against 167,400,000 days in 1934); in other words, the number of such cases increased by 18 per cent and the number of days by 10.2 per cent compared with the previous year. The average period of disabling illness declined from 24.6 days in 1934 to 23 days in 1935. For each hundred members there were 38.5 cases of disability and 883.5 days lost through disability, as against 33.9 cases and 833.3 days in 1934. The number of women who received sick benefits was considerably greater than the number of men. As in 1934, however, cases of worker's disability were less frequent among women than among men although, to be sure, the individual illnesses of women were of longer duration so that the number of days of disability, as in the previous year, was greater for the women than for the men. In 1936 the insurance societies were once more able to balance their budgets and in contrast with previous years closed their books without a deficit. The progressive increase in the number of persons employed has brought to the insurance societies in 1936 a further important increase in membership. The average membership (exclusive of the so-called supplementary societies) amounted in 1936 to 19,500,000 persons, or 700,000 more than in 1935 and 2,500,000 more than in 1933. There were a total of 21,400,000 persons insured by the societies; this includes 2,000,000 members of the supplementary societies.

More marked than the increased membership was the increase in income, chiefly because of the increased earnings of workers. The gross income in 1936 amounted to 1,317,000,000 marks,

Growth of Sick Insurance

	1885	1934
Number of insured	4,700,000	18,000,000
Insured per 100 of population	10 per cent	30.4 per cent
Average duration of loss of working capability	14.2 days	24.6 days
Sick days with loss of working capacity per 100 of insured	571	902
Disbursements	57,900,000 marks	1,141,000,000 marks
Amount expended for care of the sick (including medication) per 100 marks of gross income	40.1 marks	60.8 marks
Amount expended in cash benefits per 100 marks of gross income	49.8 marks	20.6 marks
Amount expended for administration per 100 marks of gross income	6.3 marks	9.5 marks

which was 7.7 per cent more than in 1935. The costs of the individual persons receiving sick benefits remained below those of 1935, apparently because the individual illnesses ran in general milder courses than in the previous year. Altogether 8,500,000 sick persons incapacitated for work were recorded by the sick insurance (not including the supplementary societies) in 1936; 40.9 per cent of the members were deprived of working capability by illness, against 39.9 per cent in 1935. For the same reasons, despite the greater number of claims, the total expenditures increased only proportionately, that is, by 1,308,000 marks (2 per cent). Reckoned according to individual members, the gross income increased by 3.9 per cent and the contributions paid in by 6 per cent, whereas the benefits declined from 68.28 to 61.17 marks. In spite of a heavy financial burden imposed by the influenza epidemic in the last two months of 1936, the sick insurance societies (on the whole) closed their records for that year with a small surplus of about 9,000,000 marks.

Interesting too is an observation made by Dr. Grünewald, director of sick insurance affairs for the present national ministry of labor. Two concepts, he says, have from year to year become more deeply rooted in the insurance societies: the greater importance of the prophylactic as opposed to the purely therapeutic approach to disease, and the need for a fundamental eradication of incipient disease. It used to be that these principles, partially as a consequence of the poor financial condition of many societies, did not receive sufficient practical application. As it has come to be recognized that "debilitating diseases," namely, those which cause premature depletion of the energies, constitute the most serious menace to the worker's health, the demand for early treatment has increased and it becomes perceptible that from the standpoint of sick insurance the allowance for early treatment will prove less expensive in the long run than the granting of compensation solely for legally prescribed disease conditions in the individual case.

A few comparative figures that were published a short time ago on the occasion of the fifty-year jubilee of the sick insurance are reproduced in the accompanying table to illustrate the growth of this field.

RIO DE JANEIRO

(From Our Regular Correspondent)

Feb. 15, 1937.

Treatment of Cranial Trauma

Prof. Enjolras Vampré, in a lecture recently delivered to the Sociedade de Medicina e Chirurgia of São Paulo, reviewed the diagnosis and treatment of cranial trauma. When no history is obtainable, as when a patient arrives in an ambulance, the differential diagnosis is made between cranial trauma and Bright's disease, diabetes, hemorrhages, softening of the brain, convulsions, epilepsy, alcoholic coma and lethargic encephalitis. Careful examination and consideration should be given to the pulse, the arterial pressure, respiration, temperature and the reflexes. The condition of the pupils and of the fundus of the eyes is of importance. The speaker discussed the diagnostic value of ecchymoses, hemorrhages of the nose, mouth and ear, x-ray studies of the head, the integrity of the cerebral substance or its coming through a fracture, and the presence of traumatic meningo-encephalitis. Functional disturbances after trauma, showing alterations in the brain, are of more clinical importance than cranial fracture. Cranial trauma disturbs the vasomotor functions of the brain with consequent alterations of the cerebrospinal fluid and of the cerebral arteries and veins. The treatment of concussion is in accordance with the type (congestive, edematous and hypertrophic) of concussion. Immediate manometric determinations of the pressure of the cerebrospinal fluid, especially for diagnosis of suboccipital functions, are of value as, according to Leriche, there may be hypotension or hypertension of the fluid after trauma.

Ventriculography in the Localization of Intracranial Tumors

Dr. Carlos Gama recently lectured before the Sociedade de Medicina e Chirurgia of São Paulo. He reviewed the technics of ventriculography, especially Dandy's technic for puncture of the posterior horns of the lateral ventricle. From the point of view of ventriculography, the lateral ventricles can be considered as dilated spaces, in comparison to the size of the other ventricles of the brain, which are of an irregular narrow shape, except in hydrocephalus. Certain contrast substances (such as thorium dioxide sol), which are soluble in the cerebrospinal fluid, are inconvenient in ventriculography and their use should be discontinued.

ITALY

(From Our Regular Correspondent)

Feb. 20, 1937.

National Harm from Venereal Diseases

The problem of the harm caused in Italy from syphilis and gonorrhea, from demographic, social and economic angles, was discussed at the National Congress of Dermatology and Syphilography, which was recently held at Rome. Professors De Amicis of Naples and Serra and Revelloni of Cagliari were speakers. The most important conclusions drawn were as follows: The actual number of syphilitic patients in Italy is about 750,000. Two thirds of this number are men. The annual mortality from acquired syphilis is about 30,000 deaths. That from congenital syphilis (prenatal and postnatal deaths) is about 30,000. The number of mental defectives from congenital syphilis is about 10,000. There is an annual loss of about 50,000 births due to lack of virility of men or to sterility of women from gonorrhea. In all, about 120,000 lives are lost. The social harm and economic expenses may be evaluated in an annual total loss of about 500,000,000 lire ($25,000,000) plus other expenses in controlling diseases that develop or are aggravated by syphilis or gonorrhea. The Italian government spends about 7,000,000 lire ($350,000) a year in preventing the development of venereal diseases.

Meeting of Obstetric Society

The annual meeting of the Società di Ostetricia e Ginecologia of Rome was recently held at Milan and presided over by Professor Alfieri, head of the clinic of the Milan University. Professor Delle Piane of Novara presented the first topic, "Cancer of the Body of the Uterus." The frequency of the latter, in comparison with other gynecologic diseases, is 0.5 per thousand, whereas in comparison with cancer of the genitalia it is 10 per cent. The average age of development of the disease is between 48 and 50 years. In 65 per cent of the cases it develops after the menopause. Benign adenoma is the most important precancerous tumor, which may become cancerous or occur in association with cancer. The mechanism of propagation of cancer of the body to the uterus and outside the structure is different from that of cancer of the neck of the uterus. The external orifice of the uterus presents an obstacle to the superficial propagation of cancer of the body, which slowly spreads to deeper layers in the uterus and outside the structure. Sometimes it extends to retrograde structures by means of metastases through the lymph vessels and the veins. The modifications of different segments of the uterus, hemorrhages and pain are important symptoms. Hysterometry, hysterography, digital examination and especially biopsy are of diagnostic value. It is advisable to apply biopsy by aspiration for early diagnosis, followed immediately by operation or physical treatment. Cancer of the body of the uterus at the time when a clinical diagnosis is made is operable in from 60 to 100 per cent of the cases. The high percentage of operability depends on the slow evolution of this type of cancer, in which the tumor is in the uterus for a long time. The treatment is excision of the uterus and the adnexa.

In the discussion, Professor Artom of Rome called the attention of general physicians to the diagnostic importance of cancer of the body of the uterus and to the need of examining the entire structure and not merely the neck. Professor Zancla of Palermo reported satisfactory results from the roentgen treatment in nineteen of twenty-three patients who had cancer of the body of the uterus. Professor Maurizio of Padua reported results from the roentgen treatment in about 405 cases of cancer of the uterus in which treatment was administered at the clinic of the University of Padua from 1928 up to the present time. There were no deaths in the group of forty-eight patients who suffered from cancer of the body of the uterus. Professor Momigliano of Rome said that diabetic patients who suffer from cancer of the body of the uterus have to be given insulin before irradiation because radium and the x-rays increase glycemia. Professor Alfieri of Milan is opposed to irradiation. He advises total hysterectomy, except in cases in which contraindications exist. In cases of cancer of the body that were treated by the speaker with liberal doses of radium (70 millicuries) the hemorrhage was controlled, but neoplastic tissue was found in the uterus several months later.

The second topic was glycosuria and diabetes with relation to maternity. Professor Bompiani of Palermo was the speaker. Glycosuria in the course of pregnancy may originate in a lowering of the renal threshold, in a paradiabetic condition in association with or independent of lowering of the renal threshold, and in diabetes. Sometimes diabetes is latent and shows itself by a condition of relative insufficiency of the insular system which is due to endocrine changes induced by pregnancy. In the origin and evolution of glycosuria the functional activity of the anterior lobe of the hypophysis is of the utmost importance because of the relations of the lobe to the metabolism of pregnant women and the rôle of functional hypophyseal disturbances in the development of pathologic conditions in pregnancy. The speaker discussed the advisability of permitting conception or inducing sterility in diabetic women, the influence of diabetes on pregnancy, labor, the puerperium and lactation, and the influence of maternity, the evolution and the complications of diabetes.

Personal Items

Prof. Luigi Auricchio has been appointed professor in the pediatric clinic of the University of Naples to succeed Prof. Rocco Jemma, who resigned because he reached the age limit for teaching (70 years). Professor Auricchio has reported results of clinical work on several pathologic conditions, especially the pathogenic and diagnostic aspects. His most important contributions are on hemorrhagic diatheses, eosinophilia, varicella, vaccination and serodiagnosis of infantile leishmaniasis.

Course on Industrial Medicine

A course on specialization in industrial medicine will be given at the Ospedali riuniti of Pistoia. The motion for establishing the course came from the Accademia Medica Filippo Pacini. The course will cover industrial medicine from the point of view of Italian industrial laws, both those now in force and those which will come into force April 1.

Serotherapy Institute in Addis Ababa

A branch of the Milan serotherapy institute will be open at Addis Ababa in the near future. The construction of the building was recently begun.

Marriages

CLIFFORD MCKINLEY CRESWELL, New York, to Miss Dorothy Sumner Beaman of Providence, R. I., Dec. 19, 1936.

B. KIRTLEY AMOS, Princeton, Ky., to Miss Delia Elizabeth Godley in Washington, N. C., March 17.

ROMUS ARNOLD, Joliet, Ill., to Mrs. John Edgar Brock of Evanston in Lansing, Mich., in March.

CHALMERS E. CORNELIUS, Jenkintown, Pa., to Miss Elizabeth Oelbermann of Philadelphia, April 3.

JOSEPH BUCKNER KILLEBREW to Miss Katherine Bessent, both of Chattanooga, Tenn., January 10.

LESLIE D. DARNER to Miss Lucie Demery, both of Granite City, Ill., in Palmer, March 28.

JAMES BELL CAROTHERS to Mrs. Jane Brown Daniel, both of Atlanta, Ga., January 9.

FLOYD M. BURGESON to Miss Helen Anderson, both of Atlanta, Ga., February 18.

ROBERT D. CRAWFORD, Dothan, Ala., to Miss Tommie Cotter in Ozark, January 12.

Deaths

Thomas J. Gallaher ✠ Denver; University of Pennsylvania Department of Medicine, Philadelphia, 1889; secretary of the Section on Laryngology and Otology of the American Medical Association, 1894-1895; professor of laryngology and rhinology at the University of Denver Medical Department, 1897-1902; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; on the staffs of St. Luke's and Children's hospitals; for two years member of the medical advisory board of the Presbyterian Hospital; aged 69; died, February 5, of angina pectoris.

Philip Hammond, Boston; Harvard University Medical School, Boston, 1894; member of the Massachusetts Medical Society, the American Otological Society and the New England Otological and Laryngological Society; for many years instructor in otology at his alma mater; consulting aurist for the Massachusetts General Hospital, the Massachusetts Eye and Ear Infirmary, the Melrose (Mass.) Hospital, Winchester (Mass.) Hospital, the Anna Jacques Hospital, Newburyport, and the Hale Hospital, Haverhill; aged 65; died, February 7, of Hodgkin's disease.

Alfred Schalek, Omaha; German University of Prague, Austria, 1890; professor emeritus of dermatology and syphilology, University of Nebraska College of Medicine; formerly assistant professor of skin and venereal diseases at Rush Medical College, Chicago; member of the American Dermatological Association; past president of the Omaha Dermatological Society; member of the staffs of the Methodist, Immanuel and Swedish hospitals; author of "Diseases of the Skin" and "Fundamentals of Dermatology"; aged 71; died, February 9, of pneumonia.

Edwin Elgin Evans ✠ Columbia, Mo.; University of Missouri School of Medicine, Columbia, 1898; member of the American Psychiatric Association; at various times assistant physician, State Hospital, Fulton, State Hospital, St. Joseph, superintendent of the East Louisiana State Hospital, Jackson; assistant superintendent and managing officer of the Huntington (W. Va.) State Hospital; aged 68; died, February 8, in St. Louis, of coronary thrombosis.

James Harrison Hodges, Gainesville, Fla.; College of Physicians and Surgeons, Baltimore, 1888; member and past president of the Florida Medical Association; formerly member of the state board of medical examiners; at one time superintendent of the Florida Farm Colony for Epileptic and Feebleminded; served as a physician for the Seaboard Air Line Railway and the Atlantic Coast Line Railroad for many years; aged 70; died, February 3.

William Edgar Holland, Fayetteville, Pa.; Medico-Chirurgical College of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; past president of the Franklin County Medical Society; on the staff of the Chambersburg (Pa.) Hospital; served as a school director in Greene Township and for a number of years was president of the board; aged 66; died, February 3, of chronic nephritis and uremia.

Henry Irving Cozad ✠ Cuyahoga Falls, Ohio; Western Reserve University Medical Department, Cleveland, 1898; member of the American Psychiatric Association; formerly chairman of the county and city board of health; medical director and superintendent of the Fair Oaks Villa; aged 64; neurologist to the Akron City Hospital, where he died, February 1, of pneumonia.

Felix William Garcia, St. Louis; Washington University School of Medicine, St. Louis, 1893; at one time lecturer of anatomy at the Marion-Sims College of Medicine; for many years physician for the Home for the Aged of the Little Sisters of the Poor; aged 65; died, February 11, in the Barnes Hospital, of carcinoma of the larynx.

Herman Louis Fuerstman, Newark, N. J.; Long Island College Hospital, Brooklyn, 1910; member of the Medical Society of New Jersey; for many years a member of the board of education; on the staff of the Beth Israel Hospital; medical director of the Essex Private Hospital; aged 52; died, February 12, of coronary thrombosis.

Elphege A. René De Cotret, Montreal, Que., Canada; M.B., Laval University Medical Faculty, Montreal, in 1886, and M.D. in 1888; formerly professor of obstetrics and clinical obstetrics at the University of Montreal Faculty of Medicine; at one time one of the directors of L'Hopital Notre-Dame; aged 75; died, February 7.

Fred Henry Shorts ✠ Kent City, Mich.; Saginaw Valley (Mich.) Medical College, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; for many years member of the school board; veteran of the Spanish-American and World wars; aged 61; died, February 12.

Halbert Lee Waterman, Brattleboro, Vt.; University of the City of New York Medical Department, 1892; formerly member of the state board of medical registration; at one time health officer of Brattleboro; on the staff of the Brattleboro Memorial Hospital; aged 68; died, February 20, of lobar pneumonia.

Ezra Esher Fry ✠ Bonners Ferry, Idaho; University of Toronto (Ont.) Faculty of Medicine, 1902; for many years county physician; member of the board of village trustees and school board; president of the bank; founder of the Bonners Ferry Hospital; aged 61; died, February 6, of coronary thrombosis.

William Marvin Johnson ✠ Sparta, Tenn.; University of the South Medical Department, Sewanee, 1900; past president of the White County Medical Society; served during the World War; formerly county health officer, and member of the school board; aged 60; died, February 2, of influenza and pneumonia.

Albert Harold Linaweaver, Findlay, Ohio; College of Physicians and Surgeons of Chicago, 1896; member of the Ohio State Medical Association; past president of the Hancock County Medical Society; on the staff of the Home and Hospital; aged 80; died, February 2, of heart disease.

Theodor L. E. Arnold, Dallas, Texas; Universität Bern Medizinische Fakultät, Switzerland, 1875; Universität Zürich Medizinische Fakultät, Switzerland, 1886; member of the State Medical Association of Texas; aged 88; died, February 25, of arteriosclerosis, myocarditis and coronary sclerosis.

Helene Emeth Schutz ✠ Ann Arbor, Mich.; University of California Medical School, San Francisco, 1927; instructor in hygiene and public health and physician in the health service, University of Michigan; aged 35; hanged herself, February 20, while a patient at a hospital in New York.

William Hirsch, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; member of the Medical Society of the State of New York; formerly consulting physician at the Manhattan State Hospital; aged 78; died, February 14.

Sylvester A. Hawes, Greenville, Ohio; Medical College of Ohio, Cincinnati, 1884; on the staff of the Greenville Hospital; for many years pension examiner in Darke County; physician and surgeon for the New York Central and Baltimore and Ohio railroads; aged 76; died, February 20.

Ernest E. Hancock ✠ Battle Creek, Mich.; Hospital College of Medicine, Louisville, Ky., 1901; aged 62; died, February 13, in the Nichols Memorial Hospital, as the result of injuries received when the automobile in which he was driving was struck by a train.

John William Ebert ✠ Towson, Md.; University of Maryland School of Medicine, Baltimore, 1912; on the staff of St. Joseph's Hospital, Baltimore; aged 49; was found dead, February 2, at his home in West Palm Beach, Fla., of coronary thrombosis.

William Morton De Bord, Ashland, Ky.; University of Louisville Medical Department, 1907; member of the Kentucky State Medical Association; veteran of the Spanish-American War; formerly county health officer; aged 63; died, February 17.

Oliver Perry Faires, Greenfield, Mo.; Kansas City Medical College, 1905; for many years Jackson County jail physician; aged 71; formerly on the staff of the Trinity Lutheran Hospital, Kansas City, where he died, February 9, of pneumonia.

Ernest Perry Clement, Elyria, Ohio; Starling Medical College, Columbus, 1898; member of the Ohio State Medical Association; past president of the Lorain County Medical Society; aged 62; died, February 2, of cardiorenal vascular disease.

William Rendell Williams, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1902; professor of clinical medicine at his alma mater; aged 63; died, March 5, in the Hahnemann Hospital, of carcinoma of the bladder.

Stephen Anderson Hall, Advance, Ind.; Kentucky School of Medicine, Louisville, 1894; aged 72; died, February 20, in the SS. Mary and Elizabeth Hospital, Louisville, Ky., of injuries received when he was struck by an automobile.

William Martin Dummer, Fairfax, Minn.; Northwestern University Medical School, Chicago, 1918; member of the

Minnesota State Medical Association; aged 50; died, February 1, in Rochester, of hypertension and renal insufficiency.

Ernest G. Epler, Fort Smith, Ark.; Chicago Medical College, 1883; member of the Arkansas Medical Society; one of the founders and on the staff of Sparks' Memorial Hospital; aged 76; died, February 22, of carcinoma of the liver.

Adolph Lincoln Marks, St. Louis; St. Louis College of Physicians and Surgeons, 1897; also a dentist; veteran of the Spanish-American War; aged 75; died, February 3, in the Lutheran Hospital of cerebral hemorrhage.

George M. Bradish, Grand Rapids, Mich.; Eclectic Medical Institute, Cincinnati, 1879; for many years county coroner and township health officer; aged 82; died, February 22, of cerebral hemorrhage and chronic nephritis.

Frank Henry Luce, Seattle; University of the City of New York Medical Department, 1882; formerly member of the state legislature and lieutenant governor; aged 77; died, February 1, of coronary thrombosis.

John Roscoe Ash, Brighton, Ill.; Beaumont Hospital Medical College, St. Louis, 1889; member of the Illinois State Medical Society; aged 69; died, March 19, in a hospital at Alton, of pneumonia.

Merritt Fillmore Lee, Middle Grove, N. Y.; Eclectic Medical College of the City of New York, 1883; also a minister; aged 84; died, February 8, of arteriosclerotic heart disease and cardiac embolus.

Robert F. Shinsky ✠ Detroit; Detroit College of Medicine and Surgery, 1920; aged 49; for many years on the staff of St. Mary's Hospital, where he died, February 2, of a staphylococcic infection.

Frank Louis Darrow, Columbus Junction, Iowa; Jefferson Medical College of Philadelphia, 1882; Bellevue Hospital Medical College, New York, 1885; aged 80; died, February 13, of arteriosclerosis.

William Byrd Jackson ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1928; aged 32; on the staff of the Mercy Hospital, where he died, February 11, of pneumonia.

Roscoe Felix Johnson, Columbus, Ga.; Baylor University College of Medicine, Dallas, Texas, 1914; served during the World War; aged 44; died suddenly, January 31, of heart disease.

William James Richardson, Greensboro, N. C.; Jefferson Medical College of Philadelphia, 1886; aged 73; died, February 17, in the Wesley Long Hospital, of chronic nephritis and myocarditis.

Harriet Louise Hawkins, Birmingham, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; aged 75; died, February 21, of arteriosclerosis and myocarditis.

August Anderson ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1916; veteran of the Spanish-American and World wars; aged 55; died, March 14, of organic heart disease.

Charles Wilson Hughes, Wilmington, Del.; Pulte Medical College, Cincinnati, 1893; on the staff of the Homeopathic Hospital; aged 75; died, February 11, of acute pulmonary edema.

Oscar Landauer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1903; aged 53; died, February 17, of illuminating gas poisoning, self administered.

Charles L. Jones, Noble, Ill.; Barnes Medical College, St. Louis, 1903; aged 62; died, February 2, at the Olney (Ill.) Sanitarium, of cardiovascular renal disease.

Harry Alonzo Huntoon, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1908; aged 56; died, February 12, of pneumonia.

Douglas Duperier, Port Arthur, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1892; aged 72; died, February 9, of chronic myocarditis.

Sullivan Howard, Elk Creek, Neb.; University of Denver Medical Department, 1892; aged 71; died, February 2, in St. Petersburg, Fla., of cerebral hemorrhage.

William M. Cory, Waterville, Minn. (licensed in Minnesota under the Act of 1887); aged 78; died, February 5, of influenza, acute nephritis and uremia.

Edwin William Rose, Gladstone, Manit., Canada; Manitoba Medical College, Winnipeg, 1900; aged 59; died, February 23, of lobar pneumonia.

Correspondence

POSTGRADUATE MEDICAL EDUCATION IN VIENNA

To the Editor:—Notwithstanding the ravages of the World War and of the chaotic period that followed it, Vienna nevertheless succeeded in retaining her popularity among American physicians as a first class postgraduate medical center. During the past summer, for instance, there were approximately seventy-five English-speaking physicians constantly in attendance, and the organization which served them, the American Medical Association of Vienna (in no way connected with our own American Medical Association) boasted a life membership exceeding eight thousand, accumulated during its thirty-two years of existence.

The most plausible explanation for this enduring popularity is unquestionably the "hands-off" policy of the Austrian government, which until recently at least has been not to interfere with the intellectual and scientific pursuits of its universities. Unfortunately, however, sufficient evidence exists to indicate a gradual deviation of late from this liberal policy. Manifestations of political regimentation, such as the removal of men, even though highly competent, from university and hospital positions solely because of political or racial nonconformities, were quite obvious to Americans visiting there several months ago, and particularly to those of us who had our instructors picked before reaching Vienna. For instance, of the four names listed in my own "prospectus" I discovered on arrival that one had already been deprived of his teaching facilities and that another was expecting fearfully a similar fate in the near future. His fears have since then materialized into a tragic reality.

These facts argue for a preliminary investigation on the part of American physicians contemplating postgraduate study in Vienna. The important question to settle of course is whether or not the instructors concerned are still in their favorable teaching positions. The continued appearance of their names in the printed catalogues does not always tell the whole story. A clinician may still be listed as "dozent," for instance, and yet not have an adequate amount of clinical teaching material at his disposal.

Letters of inquiry directly to the instructors under consideration should help to do away with many of these uncertainties and should tend to obviate much of the disappointment and confusion that might otherwise result.

MAX MILLMAN, M.D., Springfield, Mass.

"THE THERAPEUTICS OF PROSTIGMIN"

To the Editor:—In the article "The Therapeutics of Prostigmin" by Drs. Goodman and Bruckner (THE JOURNAL, March 20) there is much cause to reflect. The patient was given 45 mg. of prostigmin orally at a single dose. This is considerably larger than the small single oral doses usually given to patients suffering from myasthenia gravis. After such a dose the subject exhibited characteristic signs of overdose (diarrhea, miosis, sweating, and so on) and there is a reasonable presumption that the patient was more than usually susceptible to the drug. The reaction described, while unpleasant, cannot be regarded as being dangerous.

I have treated six patients suffering from myasthenia gravis with aminoacetic acid, ephedrine, beta-aminoprophylbenzene and other methods. In all but one case the best therapeutic effect was obtained with prostigmin given orally in amounts averaging from 60 to 120 mg. daily in single doses of 15 mg. at intervals. I have never seen any evidence of severe abdominal pain, diarrhea or other untoward symptoms in these patients. Three of the six would be bedridden were it not for the use

of prostigmin. When the remissions natural to the disease have been considered, aminoacetic acid has not given the slightest evidence of therapeutic value in these patients. There is no reason to withhold prostigmin therapy in reasonable and sufficient doses from myasthenia sufferers because a healthy person has had an unpleasant reaction to an overdose.

MELVIN W. THORNER, M.D., Philadelphia.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

IMPETIGO

To the Editor:—I am in charge of the medical inspection of municipal schools. When a child comes to school with one or two small areas of impetigo, it has been my custom to advise the parent to take the child to the family physician at once. Parents usually resent exclusion for these small areas and ask whether the child may come to school if the spots are covered with a dressing of gauze fastened with adhesive tape. I have permitted them to come into school if the impetigo is completely covered in this way. I always advise them to find out from their physician whether he wishes it covered and to follow his advice. If he allows them to cover it, I allow them to come to school, if it is not spreading. One of our physicians does use the collodion with metaphen and these children are admitted, of course. I would appreciate having an opinion as to this practice, as to the safety of other children. Since absence is costly to the city, we are anxious to have them in school if they are satisfactorily taken care of by this method. I would rather that my question be not published. If it is, please omit name and city.

M.D., New York.

ANSWER.—Newman in 1935 published a paper in which he reports a research on the effect of exclusion from school on the incidence of impetigo. He chose a section of Southampton, England, fairly well isolated from other parts of the city. With the help of local physicians and workers in the schools and school clinics he plotted curves for the occurrence of impetigo during 1932 and 1933 and found that they corresponded closely. The high point was near the first of the year, slowly descending to the twenty-fifth and thirty-first weeks, then rising to the maximum. This lack of correspondence with school attendance he accepts as an argument against the influence of such attendance furthering contagion. One school did not exclude impetigo and had no more cases than the average. In another, a period of seventeen weeks admission of impetigo cases during the prevalence of an epidemic did not increase the number of cases over the average for other schools.

Newman concludes that home contacts are more important than those in school and that elimination of the common drinking cup and common lavatory in the school would eliminate the most important of contacts there.

The method of cleansing impetigo must be painless or the cases will be hidden. The dressing must be simple and not likely to be dislodged. Control is to be sought for by the encouragement of cleanliness, the elimination of common utensils in the schools and the effective first aid treatment of minor wounds. This seems to be a common sense view of the question. If children are admitted freely at school, their cleanliness can be controlled better and the continuance of treatment assured.

Impetigo intractable to the ordinary treatment with ammoniated mercury ointment has been managed simply by covering each spot securely with adhesive tape. In his experience the result has been wholly satisfactory. This treatment serves to protect the child against self inoculation as well as to protect other children. In spite of its breaking the first rule of surgery in the treatment of infection, that is, to encourage free drainage, it has not resulted in deeper involvement but in a prompt suppression of the infection. The skin in the circinate form of impetigo acquires resistance at the center of the lesion and heals as the infection involves fresh skin, spreading at the periphery. The occlusive tape treatment apparently encourages the acquisition of immunity and prevents spreading. Where ulceration is present, i. e., ecthyma, one would hesitate to recommend the same treatment, though it may be effective here as well.

EFFECT OF SODIUM CACODYLATE ON THE MALARIA PARASITE

To the Editor:—What effect on the malaria parasite does sodium cacodylate have, given orally, intramuscularly or intravenously? In fact, is any arsenical preparation considered a malarial parasiticide? If these preparations do not kill the parasites, in what way or manner, if any, do they act as adjuncts to quinine? Please omit name.

M.D., Alabama.

ANSWER.—Sodium cacodylate, given orally, intramuscularly or intravenously, has no effect on the malaria plasmodia or on the temperature. Some clinicians believe that some preparations of arsenic have a directly destructive action on the malaria plasmodia. Neoarsphenamine in some infections has apparently produced a disappearance of the symptoms. Sulfarsphenamine is also believed by some to be as effective as neoarsphenamine. Other authorities believe that acetarsone, an arsenical preparation used in the treatment of syphilis and amebiasis, is of some value in tertian malarial infections. Sinton treated twenty-five cases of benign tertian malaria with acetarsone and found that 92 per cent relapsed, although the drug controlled the symptoms during the paroxysms. Chopra states that acetarsone given intravenously caused the disappearance from the blood of the tertian malaria plasmodia in seven artificially infected and two naturally infected patients and prevented relapses for two months. But no accurate knowledge exists of exactly in what manner the drug acted, whether by directly killing the plasmodia or in some other manner.

In view of the lack of data regarding the accuracy of the diagnosis of malaria in most of the infections in which arsenicals have been used, it is impossible to give an exact evaluation of these drugs in the treatment of malaria; but they undoubtedly exercise a tonic effect, especially in combination with quinine. So far as effectiveness goes, none of the arsenicals are of very much value in the treatment of malaria unless combined with quinine, and none of them can be considered a malaria parasiticide. They should be administered in malaria only for their tonic effect and should never be given either intramuscularly or intravenously.

STERILITY

To the Editor:—I would appreciate your opinion as to the number of cases of sterility in which no abnormality can be found in either party. A husband seeks divorce on the grounds of sterility on the part of the wife. They have been married for about fourteen years and have lived together for the most part for about twelve years of that time. Contraceptive means have not been used except withdrawal for a portion of the time. Pelvic examination done some time ago shows nothing abnormal. Microscopic examination of the semen shows motile and apparently normal spermatozoa. The wife, who became pregnant a short time ago, however, after having been separated from her husband for over a period of some seven months and had an abortion done, now wishes to fight the case in order that she may obtain more money. The husband does not wish to bring into the court the history of the abortion. Would you please, if possible, furnish statistics as to the percentage of cases, both parties being apparently normal, who are sterile. Please omit name.

M.D., Tennessee.

ANSWER.—There do not seem to be any statistics as to the percentage of cases of sterility in which both partners are apparently normal, though such cases are not rare. A fair estimate would seem to be about 5 per cent. It must be remembered, however, that many patients who are apparently normal from an anatomic standpoint present various abnormalities of physiologic or endocrinologic nature and that the advances which have been made in the study of the latter factors have steadily decreased the group ascribed to the factor of "germ cell incompatibility." For example, such well established causes of sterility as thyroid or pituitary hypofunction, or lack of ovulation, even in normally menstruating women with no structural pelvic lesions, are now readily demonstrable by proper examination and tests. For that matter, even such structural changes as blockage of the tubes may be present when the pelvic examination reveals no palpable abnormality. The subsequent occurrence of pregnancy in this case obviously indicates normal or partial patency of the tubes.

Other considerations are to be borne in mind in evaluating such a case as that described by the correspondent: 1. The possibility of fertility is the resultant of the fertility capacities of both partners. 2. The presence of motile spermatozoa is not in itself evidence of fertilizing potency, for other factors are important, such as the number of spermatozoa, the proportion of abnormal forms, and so on. 3. If the evidence as to the subsequent pregnancy of the wife in the case described is unimpeachable, it would seem to constitute incontrovertible evidence that she is certainly at least relatively fertile.

TREATMENT OF SYPHILIS

To the Editor:—The paper by Stokes on "Clinical Problems in Syphilis Control Today" (THE JOURNAL, March 6) is quite the most useful résumé I have ever read—clear, coherent, easily expressed. I am teaching pharmacology to fourth year medical students at Queen's University, and we have recently been studying our means of attack on this problem. The only thing I do not find sufficiently clear is the statement of the distribution of the drug courses—five injections of the arsenical and ten of bismuth subsalicylate over the sixty-five weeks. How are the thirty injections of the arsenical related to the sixty of bismuth subsalicylate as to time interval and rotation relationship (p. 782, line 17 and following)?

THOMAS GIBSON, M.D., Kingston, Ont.

ANSWER.—The United States Public Health Service Division of Venereal Diseases publishes the proceedings of the Conference on Venereal Disease Control held in Washington, December 1936, which includes the series here mentioned, as a separate publication.

The treatment schedule corresponding to the sloganized "30-60-0-3" is the American continuous alternating system of treatment described in the report of the Commission of Experts on Syphilis of the League of Nations Health Organization.

The week-by-week tabular presentation of this standard course of treatment is herewith reproduced.

Plan of Alternating Continuous Treatment for Early Syphilis **

Time	Arsphenamine, Gm.	Interim Treatment	Serologic Test	Comment
Day				
1	0.3-0.6	.....	1	Arsphenamine dosage for first 3 injections at level of 0.1 Gm. for each 25 pounds (11.3 Kg.) of body weight. Average subsequent dosage, 0.4 Gm. men, 0.3 Gm. women, the fourth and subsequent injections in the first course at weekly intervals. In average patient, all lesions heal rapidly and blood serologic reaction becomes negative during first course. If arsphenamine cannot be used, substitute 8 to 10 doses of 0.3 Gm. of silver arsphenamine or 10 to 12 doses of neoarsphenamine (0.45-0.6 Gm. maximum for women and 0.6-0.75 Gm. for men). This applies also to subsequent courses
5	0.3-0.6			
10	0.3-0.6			
Week				
3	0.4			
4	0.4			
5	0.4			
6	0.4			
7	0.4	.....	1	If mercury is used, note overlap of 1 week at end of first and start of second arsphenamine courses. At this point a few days without treatment may be dangerous. (Neurorelapse)
8	...	Bismuth compounds, 4 doses 0.2 Gm., and potassium iodide or mercurial ointment and potassium iodide		
9				
10				
11				
12	0.4	.....	1	Arsphenamine starts, bismuth compounds stop
13	0.4	.....	1	Watch for provocative serologic reaction after first dose of arsphenamine
14	0.4	.....	..	Try to prevent short lapses in treatment, especially at this early stage
15	0.4			
16	0.4			
17	0.4	.....	1	
18-23	...	Bismuth compounds, 6 doses, or mercurial ointment and potassium iodide	..	Bismuth compounds are better than mercury; use if possible. Examine cerebrospinal fluid if patient's cooperation can be secured at about this time. If found to be abnormal, continue or intensify treatment as required, reexamining fluid within six months
24	0.4			
25	0.4			
26	0.4			
27	0.4			
28	0.4			
29	0.4			
30-37	...	Bismuth compounds, 8 doses, or mercury and potassium iodide		
38	0.4	.....	1	
39	0.4			
40	0.4			
41	0.4			
42	0.4			
43	0.4	.....	1	
44-53	...	Bismuth compounds, 10 doses, or mercurial ointment and potassium iodide	..	Note that bismuth or mercury courses are gradually getting longer; 4, 6, 8 and now 10 weeks
54	0.4	.....	1	
55	0.4	.....	..	The average seronegative, seropositive primary or early secondary patient should have at least 5 courses of arsphenamine
56	0.4			
57	0.4			
58	0.4			
59	0.4	.....	1	
60-69	...	Bismuth compounds, 10 doses, or mercurial ointment and potassium iodide	..	It is safer to finish treatment with bismuth or mercury compounds rather than with arsphenamine
70-122	Probation.	No treatment.....	6-12	
123	Complete physical and neurologic examination, lumbar puncture and, if possible, fluoroscopic examination of heart and great vessels			

* Table 2 in "League of Nations Investigation and Report on Treatment of Early Syphilis," by the Committee of Experts on Syphilis and Cognate Subjects, Zurich, Nov. 21-23, 1934, published in THE JOURNAL, April 13, 1935, page 1329.

EFFECTS OF ENDOCRINE MATERIALS ON GROWTH

To the Editor:—I have a patient, 15 years of age, nearly 6 feet (183 cm.) tall, and weighing only 125 pounds (56.7 Kg.). His bones are small and long; the penis and testicles also are small. I want to know what preparation of the glands would be best to give him to cause him to develop more normally.

A. S. EPPERSON, M.D., Cameron, Texas.

ANSWER.—The information given is inadequate to permit definite advice, since one cannot be certain from this description which glands are dysfunctioning and to what extent. Further

information regarding the endocrine status, especially of the thyroid, pituitary and gonads, is essential before embarking on therapy, and to this end it is advisable to determine the basal metabolic rate, sugar tolerance and, if practicable, hormone extraction studies for gonadal and pituitary function.

The size of the testicles occasionally increases following intramuscular injection two or three times a week of the gonadotropic principle from pregnancy urine in doses of from 100 to 200 rat units. This may be continued for two or three months. Development of the external genitals sometimes follows the administration of the recently developed synthetic testicular hormones. If the basal metabolism is depressed a thyroid deficiency is indicated, and thyroid in appropriate doses should be given.

Since the patient is evidently markedly asthenic and underweight, a diet regimen planned to increase his weight and nutrition is advisable.

For a more complete report, more detailed diagnostic study, including anthropometric measurements and bone-age pictures, is needed. Many of these cases develop spontaneously at the age of puberty and need no treatment at all.

TRAUMA AND GASTRIC ULCER

To the Editor:—A man, aged 32, while working as a warp hanger in a silk weaving mill Jan. 7, 1936, was struck with considerable force in the center of the epigastrium by the end of a shuttle, which flew off one of the looms. He became weak and faint and, in a few minutes, nauseated. About five minutes after the accident he vomited what remained of his breakfast, which he had eaten two hours before. About half an hour later he again became nauseated and vomited about half a pint of (apparently) pure blood. He was then taken to a hospital, where he remained thirteen days. The vomiting of blood continued for three days, at which time he began having cramping, abdominal pains. Since that time he has had attacks of cramping, abdominal pains lasting from three to eight hours at intervals of about one week and has lost about 15 pounds (7 Kg.). He has had no appetite. The attacks of cramping pain have been rather severe but in no case, except in the first attack, has he been given narcotics for relief. He came under my care recently but states that the only medication by mouth he has received from other physicians under whose care he has been is an alkaline powder called papsomax. The attacks of pain apparently have no connection with the ingestion of food. After finding a positive reaction for sugar in the urine, I had the blood sugar tested, which showed 143 mg. per hundred cubic centimeters of blood. The Kahn test is negative. The x-ray examination of the gastro-intestinal tract showed a punched out ulcer on the greater curvature of the stomach about a third of the way between the esophagus and the pylorus. Pressure over this point under the fluoroscope caused much pain; it was the most tender spot of the entire stomach and duodenal area, although there is tenderness over the entire stomach and duodenal area. Under the fluoroscope he pointed to a spot about half an inch above the pylorus as the point where the shuttle struck him. The patient states that he had never had any stomach trouble or abdominal complaints before the injury. His white blood cell count is 12,700, red blood cell 5,750,000, hemoglobin 90 per cent. The urinalysis showed, besides the positive Fehling test, one plus albumin, occasional pus cells and an amorphous phosphate sediment. He has never had any operations. Can there be any connection between this man's injury and his present condition? What further can be done to clear up this case and what treatment do you advise?

M.D., North Carolina.

ANSWER.—One may properly conclude that trauma was the inciting or actual causative factor to explain the presence of the gastric ulcer and the presence of disturbed carbohydrate metabolism. The latter condition is actually a form of diabetes that may be latent or subclinical or could be the direct result of pancreatic injury. The factor of trauma in the genesis of acute and chronic peptic ulcer has been a subject of contention for many years. Recent contributions to the American literature on the subject have been made by Crohn and Gerendasy, Eusterman and Mayo, and Irving Gray. Judging from the cases reported, such ulcers are more likely to occur in the stomach than in the duodenum, as a portion of the stomach underlies the exposed epigastric angle of the abdominal wall. The duodenum lies deeper and is more protected.

The nondescript nature of the abdominal pains makes it difficult to determine their origin; they are certainly not characteristic of ulcer. However, the traumatic, possibly penetrating, nature of the lesion, and the probability of an associated pancreatitis, could explain the atypical symptom complex. Lesions on the greater curvature, posterior wall or prepyloric area are often carcinomatous, but under the circumstances one would greatly discredit that possibility. It seems essential that the patient be hospitalized for a period of a month on adequate ulcer management, with a continuation of the treatment in ambulant fashion for six or eight months thereafter at least. If satisfactory improvement from both a clinical and a roentgenoscopic standpoint does not occur, surgical intervention may be advisable. If hyperglycemia persists, a certain amount of restriction of carbohydrates is also advisable.

DUPUYTREN'S CONTRACTION, ARTHRITIS OR FIBROSITIS

To the Editor:—A man, aged 63, complains of a progressive stiffness of the joints for the past eight years with little pain, involving largely the smaller joints. The phalangeal joints of the hands and feet are practically fixed and the metatarsophalangeal joints, especially of the large toes, are greatly limited. There appears to be a slight atrophy of the small muscles of the hand, the joints are not enlarged, and there is but little sensory disturbance except a rather intense burning of the right foot. Is this a form of arthritis? The reflexes appear somewhat hyperactive but the same bilaterally, and no clonus is present. The flexor tendon of the third right finger is hard as if calcified, is contracted, and is attached to the overlying skin. This firm tendon interferes with the patient's work as a carpenter and also the finger is permanently flexed at the first phalangeal joint. The left hand appears to be on the same course as the right because the skin appears attached over the corresponding tendon in the palm and at the wrist, and motion is limited. The patient has considered having the finger on the right hand amputated. Would this be the proper procedure? Would releasing the skin and probably the tendon sheath in the left hand avoid the contracture? Please omit name.

M.D., Pennsylvania.

ANSWER.—The case suggests the need for distinguishing three conditions from one another: (1) Dupuytren's contraction, (2) chronic arthritis with fibrositis and fasciitis producing contraction resembling the Dupuytren type, and (3) "chronic fibrous rheumatism" of Jaccoud. The report is that the skin of the hand is firmly attached to the underlying tissues ("tendons") and that there is a flexion deformity of one phalangeal joint. "Dupuytren's contraction" is a palmar fasciitis resulting from inflammatory hyperplasia or "fibroid hypertrophy" of the palmar connective tissue. The condition affects the palmar fascia and skin and its digital prolongations. The statement is often mistakenly made that tendons are involved. When the affected fingers are extended, cordlike contractions become prominent in the palm, but these are not tendons; they are the contractions of the palmar fascia. Tendons are not affected, as operations on them have shown. At first a patient so afflicted will note a feeling of tightness in the palms of the hand or in the ring (fourth) or fifth finger. Neuralgic pains may be felt and the patient cannot fully extend a finger. Careful examination may reveal one or several nodules in the palmar fascia, most commonly near the base of the fifth finger. At first the nodule is not attached to the overlying skin; later the skin becomes adherent to the hypertrophied fascia and nodule in a hard, firm attachment. Contractions occur and one or more fingers may be flexed, sometimes sharply, on the palm. The condition is usually bilateral, although it often begins in one hand, especially the right, months or years before it appears in the left hand. The cause is unknown, but trauma, infection or a "trophoneurosis" has been held responsible. Since carpenters and others who use their hands extensively are most commonly affected, trauma is regarded as the most important aggravating, predisposing or localizing factor.

Textbooks and dictionaries define Dupuytren's contraction as disorder of the palms and do not describe it as affecting the feet. The patient under consideration apparently has stiffness of the metatarsophalangeal joints as well as of the hands. No contractions in the feet are mentioned. It is possible therefore that the patient does not have "true" Dupuytren's contraction but has "false" Dupuytren's contraction, which is not infrequently seen in cases of chronic arthritis. Patients who have chronic infectious (atrophic, rheumatoid, proliferative) arthritis frequently have an accompanying fibrositis and fasciitis and, when the palmar fascia, tendons and periarticular tissues are involved, contractions resembling Dupuytren's contraction may ensue. The inflammatory reaction of the "arthritis" invades subcutaneous, fibrous and fascial tissue: nodules may form and flexion deformities and contractures of one or more fingers may result, and the overlying skin may become firmly attached to fibrotic fascia as in true Dupuytren's contraction. The inquirer has not mentioned whether roentgenograms of the joints, flexed and otherwise, gave evidence of intra-articular as well as of periarticular disease. In chronic infectious arthritis, with or without contraction resembling the Dupuytren type, the sedimentation rate of the erythrocytes is practically always elevated (generally above 30 mm. at the end of one hour), and secondary hypochromic anemia and loss of weight are generally present. No studies on the sedimentation rate of the erythrocytes in Dupuytren's contraction seem available, but in cases of local or general fibrositis without arthritis the sedimentation rates are normal or but slightly elevated (less than 30 mm.) and one would expect rates to be normal in true Dupuytren's contraction, which is essentially a special form of fibrositis.

A rare and rather "malignant" form of fibrositis must also be considered: Jaccoud's fibrositis, or "rhumatisme chronique fibreux." In this disease many joints are involved in an "inveterate and aggravated form of fibrositis," which involves

not only periarticular tissues but also related tendon sheaths and aponeuroses. Many joints may be affected. Although deviations and subluxations may result from the marked contracture of cicatricial tissues, no actual arthritis is present even in joints that are inexorably fixed and seemingly ankylosed. No hypertrophic or osteophytic outgrowths of bone occur, and cartilage surfaces are normal even in the face of "pseudoankylosis." Contraction resembling the Dupuytren form may develop and because of the malpositions and apparent ankyloses the condition closely resembles the deformities of chronic infectious arthritis with which it was confused before Jaccoud's time.

The exact clinical relationships and differences between these three conditions—the fasciitis and contractions of true Dupuytren's disease, those of chronic infectious arthritis, and those of Jaccoud's rheumatism—have not been determined, but pathologically the three conditions seem to be closely related.

The patient should have treatment for the general disease (arthritis or fibrositis) and for the local condition in the hand. Removal of foci of infection seems rational but the patient's occupation, carpentry, suggests that the chronic trauma therefrom may have been at least an aggravating or localizing factor as far as the hands are concerned, although of course his occupation does not explain the involvement of the feet. Physical therapy and massage are indicated, but the condition may be too far advanced for relief to result. Various forms of surgical and nonsurgical therapy for such palmar contractures and flexions of fingers were described by Tubby. In a recent report, Meyerding surveyed the clinical features of Dupuytren's contraction affecting 448 hands of 273 patients. The pathologic condition was described and the technic of his operation was detailed. The most successful treatment was found to be removal of the contracting palmar fascia. Occasionally it seemed best to disarticulate and amputate part of a badly flexed finger and to use the skin of the finger as a pedicle graft. Often, however, correction of flexed fingers was accomplished by fascial resection without amputation.

References for Dupuytren's contraction are:

Tubby, A. H.: Deformities Including Diseases of the Bones and Joints, London, Macmillan & Co.: 1914, vol. 1, pp. 810-823.

Meyerding, H. W.: Dupuytren's Contracture, *Arch. Surg.* **32**: 320-333 (Feb.) 1936.

For Jaccoud's rheumatism: rhumatisme chronique fibreux:

Stockman, Ralph: Rheumatism and Arthritis, Edinburgh, W. Green and Son, Ltd., 1920, pp. 76-77.

Llewellyn, L. J., and Jones, A. B.: Fibrositis, New York, Rebman Company, 1915, pp. 91-94.

BLOOD IN SPINAL FLUID

To the Editor:—1. In the presence of a skull injury, is there any way of differentiating a bloody spinal fluid from an accidental bloody tap? 2. How long after bleeding into the subarachnoid space does xanthochromia develop? 3. If, in doing a spinal tap, there is accidental injury to a vein, how long afterward can one expect to find blood in the spinal fluid? 4. Will xanthochromia develop in the spinal fluid in such a case? In the case in question, a spinal tap thirty-six hours after head injury brought forth a markedly bloody fluid. On standing, a clump of blood cells settled to the bottom of the test tube, leaving a perfectly clear supernatant fluid. Two days later a second tap gave a hazy spinal fluid, which on microscopic examination proved to be due to red blood cells. Does this indicate that the blood in the spinal fluid was due to the head injury or might the blood in the second tap have been due to the trauma of the first tap? Please omit name. M.D., Pennsylvania.

ANSWER.—1. There is no absolute criterion for differentiating blood due to intracranial hemorrhage from that due to puncture trauma. The following points, however, may aid in the differentiation:

In puncture trauma the fluid becomes progressively clearer as it continues to flow out from the needle, while in intracranial hemorrhage the blood in the fluid is evenly distributed. In intracranial hemorrhage, minute clots may be present in the cerebrospinal fluid.

As a rule the blood clots on standing in puncture trauma while in intracranial hemorrhage it usually does not clot.

In puncture trauma the supernatant fluid is clear; in intracranial hemorrhage the supernatant fluid is xanthochromic.

The benzidine test on the supernatant fluid is usually negative in puncture trauma and positive in bloody fluid due to intracranial hemorrhage.

In intracranial hemorrhage, crenated cells are usually present in large numbers.

2. Xanthochromia usually begins to develop within a few hours after the onset of bleeding in the subarachnoid space and increases in intensity for the next few days.

3. Grossly the blood in the fluid due to traumatic puncture begins to diminish within a few hours. Haziness of the fluid usually persists for three or four days. Microscopic evidence of blood may persist even longer.

4. Xanthochromia does develop following a traumatic puncture unless a very small amount of blood was present to begin with.

5. In the case in question, the fact that a clump of cells settled in the bottom leaving a perfectly clear supernatant fluid speaks for the blood having been due to a traumatic spinal puncture. The hazy spinal fluid on the second puncture was most likely due to the residue from the original bloody puncture.

PERSISTENT ENURESIS IN BOY EIGHTEEN YEARS OLD

To the Editor:—An intelligent boy of 18 has always had nocturnal enuresis. It fails to respond to treatment. The enuresis may occur two or more nights in succession. Seldom has an interval of eight days passed without such an occurrence. The urine is normal. The basal metabolism rate was minus 7. The history and examination seem to show the condition purely functional. Reasonable trial of the following have made but little, if any, impression: (1) limitation of afternoon and evening fluid intake; (2) thyroid from 3 to 5 grains (0.2 to 0.3 Gm.) daily to physiologic symptoms of warmth and flushed skin; (3) whole pituitary orally, 12 grains (0.8 Gm.) daily; (4) twice weekly injections of from 1 to 2 cc. of antuitrin-S; (5) instillation in the nose on retiring of posterior pituitary powder or of postpituitary jelly; (6) injections of postpituitary 1 cc. each; (7) ephedrine hydrochloride three-fourths grain (0.05 Gm.) at bedtime to increase in a like amount every four to seven days (see R. W. Brookfield's article in the *Lancet*, Nov. 16, 1935). Atropine in increasing doses has not yet been used because in the beginning of treatment it was my belief that antuitrin-S might develop more growth in the prostatic region and produce a desired tone to the bladder sphincter and thus the condition be permanently overcome. Having failed in the use of the various gland products, I am now considering other measures. If one lessens the depth of sleep by benzedrine sulfate or ephedrine is it not reasonable to think that the desire to urinate might awaken one? I would appreciate your suggestions for continued or different treatment. LEE W. PAUL, M.D., Los Angeles.

ANSWER.—The most difficult cases of enuresis to treat are those of long standing in older children. It is rare for this condition to continue beyond the age of puberty unless there is an organic cause as the basis for the symptom. The age of the patient is 18 years. The treatment of the condition with drugs is at least disappointing. In the case in question, before advocating any further drug treatment, it would seem essential to investigate some underlying organic cause. Among the more common causes of paralysis of the bladder are spina bifida, either of the external or of the occult type, neoplasm of the cord, and transverse myelitis following infectious disease. Other organic conditions that might cause enuresis are foreign body in the bladder, kidney calculus, renal embolism or thrombosis, and congenital malformation. In order to rule out these conditions, x-ray examination of the spine and genito-urinary tract would be indicated, as well as a complete neurologic examination, and finally, if these are entirely negative, an instrumental urologic examination would seem warranted. If these tests satisfactorily rule out any organic reason for the enuresis, psychologic investigation and therapy would seem preferable to further drug or endocrine treatment.

TAPEWORM

To the Editor:—Somewhere, sometime, I noticed a statement made that if a protruding section should be injected with some medicament, it would cause the head of a tapeworm to loosen so it could be expelled. I have recently had a couple of cases of beef tapeworm and find it quite difficult with the routine treatment to get the head, and if it is possible by injecting the terminal segment with anything, it might be a help. What was the medicament used? J. W. SEIDS, M.D., Moline, Ill.

ANSWER.—There is no drug that will cause the expulsion of the entire tapeworm by injection of the terminal segment. The scolex or head of the cestodes or tapeworms has from two to four suckers and may be provided also with clawlike curved hooks. The tapeworm thus fastens itself to the intestinal wall.

Taenia saginata, the beef tapeworm, has a head about 2 mm. wide and has a flat crown and four large suckers. This worm may have from 200 to 450 segments and is often from 2 to 4 meters in length. No drug could penetrate from the terminal segment through all the proglottides to reach the head and cause its death.

The treatment still consists in the administration of an anthelmintic drug by mouth after proper preparation of the patient. The patient should take a light diet for two days. A large enema of cold water or a thorough saline purge should be given. No breakfast should be taken on the day the drug is administered. The best remedy is perhaps pelletierine, which is not suitable for children and is expensive. The dose is from 0.26 to 0.5 Gm. (4 to 8 grains) with 0.3 Gm. (5 grains) of tannic acid in sweetened water. For children the oleoresin of male fern is best. Four doses of 15 minims (0.9 cc.) each in

capsules is given at intervals of an hour, followed by an active purge. The dose required can be considerably reduced by giving it through a duodenal tube, thus reducing the danger of toxic effects. Pumpkin seeds, kousso, powdered kamala, and thymol are also used.

TRAUMA AND BRAIN TUMOR

To the Editor:—A man, aged 38, rather athletic and always in perfect health, was struck by an automobile and thrown in the air, striking his shoulder and possibly his head as he landed on the street curb. He was unconscious for about half an hour. On gaining consciousness he complained of numbness in his right arm, forearm, hand and right foot. When allowed to get out of bed a few months later he had no control of his right leg. His speech became rather indistinct. Two encephalograms, one taken about a month and the other about two months after the accident revealed nothing. A diagnosis of cerebral hemorrhage with cerebral softening was made. About seven months after the accident the patient died. An autopsy disclosed a glioblastoma. Since I understand that this type of tumor is rather rapid in developing, I am wondering if it could have been caused by the trauma and resulting injuries incurred at the time of the accident. Please omit name.

M.D., Ohio.

ANSWER.—The query fails to mention many important signs that are usually present in both glioblastomas and craniocerebral injuries. These are headaches, vomiting, choked disks, defects in the visual fields, convulsions, uncinate fits and aphasias. It is easy to elicit a trifling trauma to the head in almost every case of brain tumor. Glioblastomas begin abruptly, and hemorrhages and degenerative lesions are the most common two changes found in this type of tumor. Further, this type of neoplasm is very malignant, grows rapidly and inevitably terminates fatally within twelve months. If it is certain that this man was perfectly well previous to the automobile accident, one must by exclusion state that the accident was a factor in producing this tumor. One must not forget the possibility that the man may have had a brain tumor and then had a convulsion or an attack of petit mal which made possible the automobile accident. In this way the accident may have been an aggravating factor of a preexisting lesion.

WRITERS' CRAMP OR EFFECTS OF FOREIGN BODY

To the Editor:—A man, aged 30, a surveyor and draftsman, has for the past eighteen months been having an acute cramping of the thumb, index and middle fingers of his right hand after writing a short time. He is of quite stable temperament and physically I can find nothing abnormal. His past history is negative except that about fifteen years ago a large wooden splinter entered his right forearm over the extensor muscles. The splinter was never removed and until about two years ago remained readily palpable beneath the skin. The Wassermann reaction is negative and the urine and the blood count are normal. Roentgenograms of the cervical and upper thoracic spines and of the right arm and forearm and hand give normal results. I have made a diagnosis of writers' cramp. Would you suggest any other diagnosis and any form of treatment? At present he is attempting to learn to use his left hand and I have given him a few diathermy treatments over the arm. Please omit name.

M.D., Hawaii.

ANSWER.—Under ordinary circumstances the diagnosis of writers' cramp would be correct, but in this particular case, in view of the migration of the wooden splinter to the depths of the forearm, and in the absence of any symptoms pointing to any other cause for the cramp, it must be assumed that the splinter is lodged in the substance of the extensor muscles or adjacent to the nerve supply to the extensor muscles, causing irritation of and unusual contractions in the extensors of the thumb, index and middle fingers. Soft tissue roentgenograms may be made to identify, if possible, the shadow of the splinter. Deep palpation may elicit some particular point of tenderness or a thickening of tissue that would give a clue to the location of the splinter. If either or both of these methods indicate the probable site of the splinter, it should be removed by operation.

DESTRUCTION OF SINUSES IN PENIS

To the Editor:—I have a patient with hypospadia. In addition to the hypospadia there are two sinuses, which are small and parallel the main channel for about 1 or 1⅛ inches. The patient has a gonorrheal urethritis. Would it be better to open the sinuses or treat them by injection? I have been injecting 5 per cent silver nucleinate into the sinuses with a blunt irrigating needle.

D. J. ZERBOLIO, M.D., Benld, Ill.

ANSWER.—The best way to clear up a condition such as discussed is by fulguration. A fine electrode can be placed in each tract, down to the bottom, and with a mild current the tract can be completely destroyed. This is much better than silver nitrate injections, which are often followed by severe reaction and at times by abscess formation.

PREVENTION OF EXCORIATION OF SKIN AFTER ILEOSTOMY

To the Editor:—What can be done to prevent and to relieve the excoriation of the skin of the abdomen by the drainage from a high ileostomy? When excretion through the incision is complete, i. e., there are no bowel movements, what can be done to shunt some food on through and reestablish normal function? In cases in which the ileostomy is so high that insufficient digestion and absorption have taken place to maintain body weight, what is the best procedure to follow?

DONALD W. RICHIE, M.D., Croton Falls, N. Y.

ANSWER.—Excoriation of the skin around an ileostomy may be prevented by protecting the skin by some substance that is impervious to the intestinal juices: petrolatum, zinc oxide ointment, kaolin paste. The last named is the most effective. It should be applied as a thick paste and allowed to dry before dressings are applied. Aluminum paste also has been recommended. A discussion of this by McLanahan and a formula may be found in THE JOURNAL, January 30, page 385.

When the excretion through the excision is complete, few measures short of surgery are of benefit in reestablishing the normal function. Occasionally a small catheter may be passed into the lower loop of the bowel and fluids and food administered by this means. However, in most cases it will be necessary to open the abdomen at the site of the fistula and make an anatomic closure.

In high fistulas of the small intestine the wound may be protected by continued suction and the body weight and fluids maintained by the administration of subcutaneous and intravenous saline and dextrose solutions. This type of case, however, will almost invariably require operative closure unless the fistula is a duodenal one, which more likely will respond to continued suction siphonage.

BLOOD SEDIMENTATION RATE IN SYPHILIS

To the Editor:—What effect does syphilis have on the blood sedimentation rate?

J. B. STOKES, M.D., Ottawa, Ill.

ANSWER.—The blood sedimentation rate is increased in syphilis, as in many other infectious diseases. This is especially true of the secondary stage, and of the tertiary stage when there is progression of the disease. However, the sedimentation test is of little value in the diagnosis of syphilis, as there are many causes of accelerated sedimentation of the erythrocytes. A positive Wassermann and Kahn test are diagnostic of syphilis. A patient may have syphilis with a negative Wassermann and Kahn reaction. Only 80 per cent of patients with syphilitic aortic aneurysm give a positive Wassermann test. A positive Wassermann reaction is diagnostic of syphilis; a negative reaction does not always exclude syphilis.

TREATMENT OF HYDROCELE

To the Editor:—In the answer to an inquiry concerning the treatment of hydrocele (THE JOURNAL, March 20, p. 997) it is stated that the so-called bottle-neck operation offers excellent results. I beg to differ. When it was introduced some years ago, the simplicity of the procedure appealed to me, as it did to others, very much, and I did a number of such operations. To my great regret, however, I was obliged to abandon it for the reason that several of my patients were left with persistently enlarged testes. I have seen several reports of a similar experience, but I have never seen any adequate explanation offered as to why it should occur. The most satisfactory type of operation, in my opinion, is excision of the sac, cutting it away 1 or 2 cm. from the point where the sac is reflected onto the testicle. This is best done through the high incision over the external abdominal ring. The simplest type of operation, excluding injection, is to open the hydrocele through a scrotal incision and pack the cavity with gauze.

JOHN D. SINGLEY, M.D., Pittsburgh.

"GLYCOSURIA IN PNEUMONIA AND OTHER INFECTIONS"

To the Editor:—The query and answer on this subject (THE JOURNAL, January 2, p. 64) do not seem to me to be entirely justified. The gist of this answer appears to be that: 1. Infection or toxemia damages the pancreas and decreases the secretion of insulin. 2. Insulin is indicated in the treatment of such glycosurias. 3. High carbohydrate treatment causes harm by exhausting the islets of Langerhans. It would not matter so much if this answer represented merely a difference in opinion regarding the theoretical aspects of carbohydrate metabolism. I believe, however, that the therapeutic advice implied by the answer is wrong and dangerous because: 1. There is good evidence that infection or toxemia produces its effect not by decreasing the amount of available insulin but by interfering with the physiologic action of insulin whether derived from the patient's own pancreas or administered from without. 2. There is evidence that the administration of insulin to the toxemic organism, except when diabetes mellitus is also present, may actually shorten life. 3. There is evidence that the administration of high carbohydrate to such patients is not contraindicated but is rather the most effective method of treatment.

SAMUEL SOSKIN, M.D., Chicago.
Director of Metabolic and Endocrine Research, Michael Reese Hospital.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Third Annual Meeting, held in Chicago, Feb. 15 and 16, 1937

(Concluded from page 1366)

DR. CHARLES E. HUMISTON, Chicago, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 16—AFTERNOON

Medicine in Education

MAX MASON, PH.D., Pasadena, Calif.: Medicine is one of the most interesting of pursuits, not only for its enormous importance but also for the progress it has shown, which is characteristic of our whole procedure, the procedure of the rational animal. We start doing things by rule of thumb, intuition, and accomplish them through a thing called an art. As the art grows curiosity grows, and the art of healing became analyzed into a set of component sciences. As the needs of the human being for betterment became greater, the analyzation into sciences gave an increasing knowledge so that we kept naturally with growing needs and growing knowledge and a continual extension of the domain over life that the practicing physician had to exercise.

We are not going to force on the medical profession a fundamental rôle in education. It is going to force itself on the medical profession. A profession that has to do with the physical and mental well being of the race cannot neglect the most important factor in that physical and mental well being, which is education. Education is primarily an inculcation of the idea of rational procedure, procedure based on accurate scientific knowledge, and the practice of medicine was a pioneer in that function. Mental attitudes are as contagious as measles and, by example, the medical profession has been educating in rationality of living. We have had 300 years of intense application of the method of science since the new learning, only 300 years, but it has been an immense period. It has been a period of freedom from fear, release from appeal to authority and superstition, and the gaining of an immense amount of detailed, accurate knowledge about the forces of the universe. Basic sciences have grown, have become one—physics, chemistry, mathematics. With a rapidly increasing theoretical knowledge of the sciences has come a rapid increase in the technological applications of them, so much so that it is a commonplace to say that man, having mastered his physical environment, has now created for himself powers over the forces of nature so great that they threaten his own destruction.

The pessimist insists that it is true, and would declare a moratorium on scientific research. "We already know too much science" is the word. Man knows more about the forces of nature than he should. He is going to use them and he is using them for destructive purposes. We see economic selfishness, racial passion and prejudice determining these things and in the growth of large political groups with the enormous power for destruction that they possess, with the hatreds, passions and prejudices engendered by narrowness of mind, the pessimist finds the danger of the race, and many go so far as to say "Stop your theoretical considerations. You are not going to have any universe left to carry on your great experimentations."

What is the cure for it? We have said that education is the cure for everything, and perhaps it is. At any rate, professional educators are stirred up over the fact that they are not meeting the fundamental needs of the circumstances and there is a great deal of discussion along the theme of education in a changing world, the university in the new world. If these discussions result in the deepening of insight into the educational process and the ceasing of the teaching of dead ideas and pseudoculture, it will be all to the good. But if they mean throwing overboard basic, sensible, disciplinary procedures and having every student in the university become a young Demosthenes and a solver of all the social problems of the world, if they mean that he shall be taught of the exact circumstances surrounding our economic and political life so he can step out into citizenship and solve the problems of the world, then I do not think we have much to hope for. We need education for a world of change; the student should be taught to participate in any situation and he need not be taught the details of the situation. We have the same simpleness today for mental training that we have had all the time. We have to find the highest common factors of successful living. It is more important than all of the informational knowledge and training in technic that you could give. There is a technic of rational living and the medical man has been teaching it through his practice for all these generations. It is the objective application to problems of individual and group living of the scientific method.

What is the matter with education? I suppose a million people have given speeches about it and every man differs. Education is a peculiar process, anyway. It is an artificial process, in the first place. The natural form of education is experience, but we haven't time to put ourselves through experience. We try to give them epitomized experience. We try to give them the benefits of it without their having had it, and that is a pretty difficult thing. We used to have educational procedures of great value simply existing in our pioneer life. There, one was in touch with reality day after day. With increased artificiality of living, the checks on method of conduct have become less and education has begun rapidly to overshoot the mark, to deal with detail and with information. Students of education and teachers are beginning to realize and beginning with the primary grades they are beginning to understand that man is a personality that can be enormously influenced by his experience, and it is their duty to influence him so that every person shall have the great opportunity of being born into a world where his personality can be formed by educational procedure into one of the highest intellectuality and the greatest emotional stability that his inherited characteristics will admit of. We are far from that stage at the present time.

The medical man has been a great demonstrator of the application of objective thinking and the scientific method to the problems of life. By virtue of his intimate relationships he has had to come to grips with all the stresses that exist in the mental life of people. He has had to broaden out in his sympathies and in his understanding. He is an example of the rational animal and he can't forget it and it is more important than the cures he gives for the sore throats or for anything else. Whether he wants to be or not, in this simple manner, he has been a profound and enormous force for informal education to the end and aim of teaching the technic of living that is right and that is proper.

There is another slant on this need of education. It consists in the familiar picture of our civilized world today with regard to mental disorder. Is it any wonder that man is showing the casualties of his evolutionary struggle? If we start with the simple unicellular organisms, I don't suppose amebas are subject to inferiority complexes or compulsion neuroses. They are simple. Man enjoys his preeminence because of the development of a highly specialized central nervous system geared to his whole physiologic make-up, but the meanings of that physiologic gearing have been lost. After coming through in the process of adaptation to his environment with a set of accelerators of action in his hormones, with the gearing of emotion, thought and action correspondent to the necessities of uncivilized life, he suddenly bursts out and becomes an artificial liver. He lives in pseudo-experience more than he does in real experience. His thoughts are the ghosts of experiences and you can't go through an intellectual process without arousing a high degree of emotional picture behind it, because every intellectual process calls into being a residue of all the memories of the life of the man and those memories are colored highly with emotional content.

He sits, doing desk work, thinking of things, worrying about things, pictures flashing through his mind consciously and subconsciously, dramatic pictures involving responses of anger,

of pain, of worry, of happiness, of whatnot. The emotional response is present in the artificial life of the mind to as high a degree as in the real life of the savage when he meets a physical danger, but he doesn't burn it up. He goes on poisoning himself with it. He lives in hormonic imbalance month in and month out, an abnormal, strange, new thing, this life of the mind and of the emotion, new from the evolutionary point of view. Is it any wonder he suffers from disorders? No.

What is the answer? To understand the process and to aid in keeping man sane and balanced as he proceeds evolving his own civilization. The thing is with us so much that we fail to realize its dramatic and terrible importance no matter how many speeches are made of it and how many reports are made of it.

If there is any major truth, it is that the profound program of human beings today in the advance and application of knowledge lies in a deeper understanding of the causes of mental disorder, of the methods of mental training, emotional and intellectual, to the end that we shall bring out from the race as stable, as intelligent and as happy a group as is possible, and we are far from that at the present time, far not only because of lack of knowledge but far because we are not applying the knowledge that we should apply. We have at best a condition of rationality, and if we took the index of rationality of all the human beings and plotted them we would have a broad curve, spread out, and if we took the spectrum of any individual we would have a thing that looked like the solar system, with heights and deep grooves. Any of us who have just passed through a political campaign will recognize that fact. The ability to maintain an emotional stability, a normal degree of lack of idiotic credulity, a reasonable degree of speaking decently of a man who probably is decent, and the ordinary modes of conduct of a rational human being are lost in about 70 per cent of men whom one would call educated. They are incapable of rational thought on that subject. We may have lost something of our conceit in thinking of man, but we have gained enormously because we have put him into the heart of nature. We are thinking of him as a heart of a universe apart and composed of parts subject to study, subject to training and, above all, subject to regularities of behavior that can be understood. It there going to be knowledge adequate to that, the great problem of humanity? I am enthusiastic about the trend of sciences to a degree that I admit is completely irrational. At that point my curve of rationality disappears. I see in these few decades the turning point in the history of the world as regards the use of science. Three hundred years has evolved beautiful methods and an enormous array of facts and they have been used for almost nothing of any importance, but at last we are getting somewhere.

The tools of the laboratory, the methods of science are being turned with enormous rapidity on the one problem worth while, self understanding of the human being, his characteristics, his action patterns, the somatic and the psychologic factors determining his action as a normal human being. At last there is a reason for turning on all this knowledge, more than for the refrigerator, the radio, more than for any of the labor-saving devices, more fraught with potentiality for human welfare.

All the sciences are at last combining in one attack that is worth while, the attack on an understanding of man, and you representatives of a great profession can see what is coming, for you are the applicators of that science. You are the cutting edge, and the medical profession will be the cutting edge of that tool which is composed of all human knowledge, the cutting edge in applying to the benefit of human character and human happiness this dearly won knowledge of the physical and chemical behavior of man. I think it is a picture of the most sublime optimism. I think it literally is a turning point in the history of a race. Consciously or unconsciously, 300 years of the scientific method has led to the point at which this knowledge can be put to something worth while. You have been forced to be psychiatrists, psychologists, anatomists. The beauty of all science is that it seems to grow more and more complex and then sweeping generalities arise that make a vast array of fields understandable and comprehensible where before it seemed incredibly difficult, and I believe that will be the same thing in this enormously complicated field of the psychobiologic nature of man.

Simplicities are arising. Broad and deep channels of understanding are being created into this realm of difficulty and, when we get through, what is education going to mean as decade after decade knowledge of what we are educating comes? Think of education in the past. In whose hands was it? Was it in the hands of people who knew anything about growth and development? No. The medical profession in the past was a great rationalizer in giving an example of unselfish, sympathetic application of scientific knowledge. It taught by example the rational approach instead of the passionate, irrational approach to the problems of life. Education is overshooting the mark in its own province by forty years, and one finds today that the best reading for an adult is a high school textbook. In a higher degree, we are training distorted minds and warped emotional bases for performance. Let's stop. Let's train the mind and the emotional background so that if they perform or not they will be able to perform well.

DISCUSSION

DR. LOUIS B. WILSON, Rochester, Minn.: The American Board of Ophthalmology was developed twenty-three years ago. Ten years ago the National Board of Medical Examiners was approached by several specialty groups with reference to their taking over the job of the certification of specialists. At that time a committee was appointed consisting of the three surgeon generals of the federal services, the secretary of the national board and myself, to consider the question of the certification of specialists. It took us about five or six years before we could get the groups concerned together. Yet out of chaos has come a certain amount of order and now the American Medical Association, quite properly, is thoroughly behind the proposition. Hitherto, all of our examinations and all of our work has been directed toward whether we should or should not turn out students as certified physicians to practice medicine in the community. We have given little thought to their future specialism; in fact, we have carefully avoided that. Now the medical profession as a group realizes that it is necessary to take some cognizance of the possibilities of their becoming specialists. Every dean here who has concerned himself in the last few years with the selection of men for departments in his medical school knows that it is practically impossible to get reliable information in adequate amounts concerning the individual whom he is considering for the heading of a department in his medical school. If we can devise, right now, in connection with our graduate work, some adequate record of an individual's attainments on his way up through the medical school, because it isn't there now, through the graduate school, because it isn't there now, until we come to select men for the faculties, we are not only going to have better general practitioners and better specialists in all fields but we are going to have better men on our faculties in our medical schools. The present method of listing the names of men who say they are confining their practice to this or that, as now made in the American Medical Directory is inadequate. The present method of stating the residencies in hospitals that are approved for training in the specialties is based on inadequate and inaccurate data, but we all agree that it must be reformed. But in the reforming of that let there be certain ideals. Those I have mentioned of recording a man's attainments, his abilities, his skill—those are to me most significant.

DR. GEORGE H. MEEKER, Philadelphia: It seems to me that we start off on the wrong foot to speak of medical specialization when what we mean is clinical specialization. The whole atmosphere of this movement is clinical specialization. In order to get clearly in our mind what is meant by a specialist we have first to think of the patient, not of the physician who claims himself to be a clinical specialist or of the instrumentalities whereby he becomes so certified. We ought to start by the dictum that the patient is entitled to that sort of a clinical service which modern medical knowledge and skill is potentially capable of rendering. If we start with that thought in mind it makes it easier to understand what we should mean by the clinical specialist. In one way he could be called a

master clinician, but the simplest way is to think of him as a clinical expert. Since only the expert may render to the patient that clinical service which is the patient's right, it is proper that there should be means not only for training physicians as clinical experts but also that there should be certifying boards such as we have talked about today duly authorized to make known to both patient and the profession who are those physicians who have become so designated. To my mind the general practitioner is the most important of all clinical specialists. If he is real, I argue that he should be a certificant of the American Board of Internal Medicine, just as fully qualified in internal medicine as any professing internist, and in addition he should be an expert in the case management of his patient. When we approach the details of the activities of the various boards, we should be very precise in our terminology. If we look at it from the standpoint of instrumentalities, I think we would be much more precise if we would speak of it as graduate clinical education rather than as graduate medical education. One of those instrumentalities has been special hospital residencies. If all we are going to do is to call special hospital residencies the instrumentality alone for doing this work, let us say so. Let us not leave it so vague as it is in the statement of the general principles of the advisory board for the medical specialist. For instance, we start off by saying "intensive graduate training." If we mean by intensive graduate training what a good residency and a specialty imply, let us say so. Otherwise, the wording is misleading. In other words, I haven't the slightest idea of what the word "intensive" here means. Probably the board has a clear idea of what that means, but I should have rubbed that word out entirely if I had my say. I have tried to emphasize that it is important to have our terminology correct. I don't think the terminology is right and I don't think our thoughts are clear on certain vital points.

DR. B. R. SHURLY, Detroit: If we are to progress, it is essential that the medical school, the hospital, the American Medical Association, the Association of Medical Colleges, the deans and all the organizing forces of education should be brought together on a perfect understanding of what is the best thing to do at this time in order to give young men the best we have and to let them know earlier what their training for specialism may be. With twelve special boards, young men are at sea as to what the requirements of those boards may be. There is a terrific amount of confusion. We have mapped out a premedical education for our students in medical colleges. It is just as necessary to have an earlier prespecialty education, to have the graduate schools carefully outline their ability to take care of these men. The Board of Otolaryngology has examined more than 2,000 men for certification. The progress has been great. The men who come up at present are much better prepared. We have a necessary 160 new men each year required in a specialty to cover the demands as they are in this country. At present there are only 100 hospital residencies, and only fifty that are of a high order. With this rapid advance in specialism, the progress is not perfectly even in the education of these men. Some of them are wofully deficient in the proper essentials of bedside medicine and general medicine. Under our progressive methods of carrying education into higher and higher fields we should not forget that general medicine cannot be, as far as the eye, ear, nose and throat is concerned, absolutely cut off at the neck, and that is the general trend at present. My plea is that, in the educational development of this new era, we rest firmly on the foundations of medicine and surgery as our rock of Gibraltar by which we steer medical education for specialists into the future.

DR. CHARLES GORDON HEYD, New York: I agree thoroughly with the preceding speakers. The educational value of research is of course apparent to every educator, but the problem of research shall not be weighed indeterminately in the examination of the qualifications for the specialist. Precision of terms we all welcome, and the fact that all specialism must fit into the general pattern of medical education I think we are agreed on. I want at this time, and I did not intend to slight three organizations, to bring the laurel of grateful remembrance to the Board of Ophthalmology, which is a pioneer; to the Board of Otolaryngology, and to the Board of Obstetrics and Gynecology, which has entered the field more recently.

Relation of the American Medical Association to the Certification of Specialists

DR. CHARLES GORDON HEYD, New York: This article was published in full in THE JOURNAL, March 27, page 1017.

The Increase in the Number of Practitioners in the Country

DR. HAROLD RYPINS, Albany, N. Y.: An accurate count of the number of physicians actually engaged in the active practice of their profession in any given jurisdiction is surprisingly difficult to obtain. The 1936 edition of the American Medical Directory gives comparative figures for the number of physicians in this country by states and totals for the country for various years between 1906 and 1934. These figures would appear to be highly accurate. However, the same directory lists 24,013 physicians in New York State, whereas the records of the New York State Department of Education show that only 21,020 were registered as in active practice. Accordingly, there is a difference of 2,993, or 14.2 per cent, between the number of physicians merely residing in New York State and the number sufficiently active in the practice of medicine to pay a two dollar registration fee legalizing such practice. This would indicate that the usual number of physicians given for any area is about 15 per cent too high, if our object is to count only those physicians actively engaged in the practice of their profession. This disproportionate increase in the number of physicians in New York during the past decade led me to study the cause of the increase for the country as a whole. In making this study I have used New York State data, as they are most easily available, but I have attempted to correlate them with information derived from a questionnaire sent to all state licensing boards, to which thirty-six complete replies were received.

The annual increment in the number of physicians licensed comes from four sources: (1) recent graduates of registered medical schools throughout the United States and Canada, (2) American students graduating from foreign medical schools, (3) physicians licensed in other states or countries obtaining licenses under reciprocity agreements or by endorsement, and (4) native graduates of acceptable foreign schools.

The figures for the number of first year students admitted to medical schools throughout the United States since 1933, when the peak was reached, indicate a falling off of 7 per cent in the number of freshmen admitted this year and a diminution of 12.5 per cent in the number of students admitted during the past four years. This is largely the result of the inspection of medical schools by the Council on Medical Education and Hospitals of the American Medical Association, in conjunction with the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, and is due to the finding that a number of medical schools were accepting a larger number of students each year than their laboratory and clinical facilities warranted for the maintenance of proper educational standards. The number of freshmen admitted into the nine registered medical schools in New York State has dropped from 716 in 1934-1935 to 685 in 1935-1936, or a fall of 4.7 per cent in one year. In short, there is a constant decrease in the number of new graduates of registered medical schools; that is, in the most eligible and desirable group of applicants for licensure.

The number of American students studying abroad reached the high point of 2,054 in 1932-1933. This number fell off slightly during the succeeding two years but has dropped sharply to 1,494 for the year 1935-1936. The falling off in the number of American students studying medicine abroad is the result of the activities of the Joint Committee on Foreign Medical Students, composed of the American Medical Association, the National Board of Medical Examiners, the Association of American Medical Colleges and the Federation of

State Medical Boards. As a result of this committee's activities there are at present only two countries, namely, Italy and the British Isles, in which American students may pursue their professional studies in the expectation of obtaining admission to licensure in most of the states.

In the year 1935, 172 graduates of New York medical schools, licensed in New York State, obtained licenses in other states under reciprocity agreements or by endorsement of their New York licenses. In the same year, 175 licenses of other American states were licensed in New York under similar circumstances. It is evident that the inflow and outgo of physicians from other states by endorsement or reciprocity practically cancel out, and it is eminently desirable that qualified practitioners in one state should be able to move with as little difficulty as possible to another. The influx of physicians from other states is not a factor in the increased number of physicians during the past decade.

The table gives the number and percentage of foreign physicians licensed in thirty-six states for the past year and for the past five years, respectively, as compared with New York State. It appears that during the past year the medical population of thirty-six other states was increased 0.1 per cent by the licensure of foreign-born physicians, while the medical population of New York State was increased 1.4 per cent, or fourteen times as much as the country at large. Similarly, for the past five years the increase in the other states was less than 0.4 per cent, as compared to 4 per cent in New York State. Thus, the licensure of foreign-born physicians in New

Licensure of Foreign Physicians

		Foreign Physicians		Foreign Physicians	
	Number of Physicians	Licensed 1935-36	Per Cent Increase	Licensed 1931-36	Per Cent Increase
New York.....	24,013	343	1.4%	961	4.0%
Thirty-six other states	115,412	114	0.1%	478	0.4%

York State during the past five years is ten times as great as their licensure in thirty-six other states for which data are available. Of the 961 foreign physicians licensed in New York during the past five years, 479 were licensed after examination. Four hundred and eighty-two were licensed without examination, by endorsement of their licenses, on submission of satisfactory evidence of acceptable education and not less than five years of legal and reputable practice. All the 482 physicians licensed without examination by endorsement are foreign born and include Canadians. A recent ruling in New York requires all foreign-trained applicants for any profession to pass the full written licensing examination for admission to the profession.

It is clear that the licensure of foreign physicians is the largest potential source of increase in the number of practitioners in a community. It is of interest to note the various devices which different states employ to restrict licensure of this group. These measures include (1) full American citizenship requirement, (2) regraduation from an American medical school, (3) internship in recognized hospitals, (4) period of residence in the state, (5) passing of a regular written licensing examination in the English language and (6) combinations of these. Of the thirty-seven states, including New York, for which data are available, nine have no citizenship requirement, sixteen require first papers only and twelve require full citizenship for licensure. Thus a residence of at least six years is required for licensure of a foreigner in Arkansas, Delaware, Florida, Georgia, Kansas, Kentucky, Michigan, Minnesota, Nebraska, South Dakota, Tennessee and Utah. Except in the case of a young man with private means this regulation is practically prohibitory. The following ten states require a foreigner to obtain an additional medical degree from an acceptable medical school: Delaware, District of Columbia, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Nevada, New Mexico and Tennessee. In view of the extreme difficulty of a foreigner's obtaining admission to advanced standing in recognized American medical schools, this ruling, again, is almost prohibitory.

Of the thirty-seven states for which data were available, twenty-one practically never admit foreigners to examination. This leaves sixteen states where licensure is a possibility. In all these sixteen states, however, it is now necessary for the applicant, no matter how many years he has been out of medical school, to pass the full written licensing examination required of recent American graduates, in a language which is foreign to him. When it is noted (1) that the average foreign applicant has been out of school from ten to twenty years, (2) that it is extremely difficult even for Americans to pass a state licensing examination five years after graduation and (3) that it is profoundly difficult for students over 30 years of age to learn to speak and write adequately a foreign language as difficult as English, it is evident that the requirement of passing the regular medical licensing examination in the English language is an obstacle that will discourage and stop all but most highly intelligent and persistent applicants.

Bearing in mind that licensure by endorsement without examination has not been permitted even in New York State since Oct. 15, 1936, we may subtract the 482 foreigners so licensed from 1,439, the total number of foreign graduates licensed in thirty-seven states during the past five years. This leaves only 957 foreigners who have been able to pass the medical licensing examinations in the various states, or an average of less than 200 foreign-born graduates a year for the entire country.

Graduate Instruction and the State Medical Association

DR. CHARLES R. SCOTT, Twin Falls, Idaho: The undergraduate phase of medical education has reached an excellence in the United States that may well afford comfort and assurance to the nation. Immediate graduate instruction has also attained a high degree of excellence in the hands of universities and allied hospitals, with their fellowships and foundations for research. But there is a further field for graduate instruction to those men who practice remedial and preventive medicine all over the nation in town and hamlet and who have been weaned from their alma mater ten and twenty and thirty or more years. These are the men on whom a majority of the people must depend for health. And these are the men who are not permitted for geographic and economic reasons to return to the medical centers to partake of the organized instruction there prepared for them. Medical educators have known this need and have attempted to meet it. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 30, 1934, published a report by Dr. Leroy E. Parkins of Harvard Medical School which shows the conscientious efforts being made, as have the news items in THE JOURNAL since that date. It seems evident that many of these generous efforts have not been entirely satisfactory to either the donors or the recipients. There has seemed to be a sense of their futility to either essayists or their audience. The inevitable result of such feeling is poor attendance. At the time I assumed the responsibilities of leading our Idaho state society I had finished a term as member of the House of Delegates of the American Medical Association and was quite sensitive to the need for an effective organization of medical men for protective purposes.

In an effort to establish a satisfactory state medical society meeting, we in Idaho evolved a plan which has been found satisfactory. We devote five days to our meeting. This gives time for the teachers to get their lessons into our minds in a good pedagogic manner. We organize a course of instruction on topics of value to the most doctors and to the most patients possible. The members from all over the state are free in suggesting to us the topics on which they feel they need to be brought up to date. We have one instructor in a fundamental science who lays the foundation for the clinical subjects to be treated each day. We have had a physiologist, an anatomist and a pharmacologist, and this year we shall have a pathologist. We obtain five active teachers of the type whom the students consider to be the men from whom they really learn the most. These will be found to be men who know their subjects well and who are gifted pedagogically. The men are chosen

after a conference first with their dean and then with them in person. We always obtain these men from the faculty of one medical school. They then organize themselves into a sort of traveling faculty and choose one of their number as its dean. Through him the topics are organized and correlated. The men whom we have had have told me that they have found it necessary to hold numerous conferences to get their symposiums harmonized. We have five fifty minute lectures each day, three in the morning and two in the afternoon. At noon there are round table luncheon discussions, one for each lecturer, and these are considered most profitable. We find that, at our average age, five hours is about all we can take with profit in one day. All of the expenses of our faculty from home town back to home town are paid by our society, and personal salesmanship is tabu. It is probably better to have the faculty from so far away that this temptation is removed. We devote one evening to a public meeting addressed by some of our faculty. The people appreciate and approve this feature. We devote another evening to a banquet, to which we invite as our guests a considerable number of influential laymen from all over the state. This banqueting assembly is addressed by a fluent and prominent man, not of our profession, on a topic not related to medicine. By having these lay lectures and the banquet address we are able to accomplish statewide newspaper publicity covering the nature of our meeting and the opportunity offered the doctors of the state that brands the doctor who never attends with the people in his community. During the five days there are ample hours for the business of the state society to be carried on without interfering with any man attending the lectures. There is also ample time for golf and other diversions.

This experiment of ours was authorized after several years of tentative suggestions to our house of delegates and was launched with some trepidation by its proponents. The results have been: 1. An increase in our attendance from around fifty up to around 175. There are not 300 doctors in active practice in the state. 2. An increase approaching 50 per cent in active members of our society and an enthusiastic appreciation from the rank and file of the profession in the state as to the value of the society and its meeting. 3. The establishment of a foundation fund, now approaching $10,000, the income from which is to be used only for the expenses of graduate medical education under the auspices of our society. 4. An increased respect for our profession in our state together with an added weight of influence by the profession on the legislature and the state administration. 5. The enthusiastic cooperation from the university faculties who have served us, together with encouragement from them to make this report and to continue and perfect our plan.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examination of state and territorial boards were published in THE JOURNAL, April 17, page 1367.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical* examination will be given at Philadelphia in June. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6, Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Virginia December Examination

Dr. J. W. Preston, secretary, Board of Medical Examiners of Virginia, reports the written examination held in Richmond, Dec. 9-12, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1935)	81, 81
University of Virginia Department of Medicine		(1934)	86

Twenty-seven physicians were licensed by reciprocity and 4 physicians were licensed by endorsement from July 31 through December 10. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine		(1930)	Mass.
George Washington University School of Medicine		(1907) (1920)	D. C., Maryland
Georgetown University School of Medicine		(1932)	Maryland
University of Illinois College of Medicine		(1913)	Iowa
State University of Iowa College of Medicine		(1902)	Iowa
University of Louisville School of Medicine		(1929)	Kentucky
Johns Hopkins Univ. School of Medicine		(1930, 2), (1932)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1914), (1928)	Maryland
Washington University School of Medicine		(1905), (1932), (1934)	Missouri
University of Nebraska College of Medicine		(1919)	Nebraska
Ohio State University College of Medicine		(1928)	Ohio
University of Oklahoma School of Medicine		(1935)	Oklahoma
University of Pennsylvania School of Medicine		(1928)	Penna.
University of Pittsburgh School of Medicine		(1932)	Penna.
Medical College of the State of South Carolina		(1923)	Ohio
Meharry Medical College		(1935)	Tennessee
University of Tennessee College of Medicine		(1929), (1932)	Tennessee
Medical College of Virginia		(1926)	W. Virginia
University of Virginia Department of Medicine		(1928) (1935)	New York, Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
George Washington University School of Medicine		(1917)	U. S. Navy
Georgetown University School of Medicine		(1935)	N. B. M. Ex.
University of Maryland School of Medicine and College of Physicians and Surgeons		(1932)	N. B. M. Ex.
University of Virginia Department of Medicine		(1932)	N. B. M. Ex.

New Mexico October Examination

Dr. Le Grand Ward, secretary, New Mexico State Board of Medical Examiners, reports the written examination held in Santa Fe, Oct. 12, 1936. The examination covered 11 subjects and included 75 questions. An average of 70 per cent was required to pass. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
School of Medicine of the Division of the Biological Sciences		(1935)	86.1
Kansas City University of Physicians and Surgeons, Missouri		(1929)	77.9

Twenty-five physicians were licensed by endorsement from October 14 through December 20. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1927) (1932)	Arkansas, Louisiana, N. B. M. Ex.
College of Medical Evangelists		(1936)	N. B. M. Ex.
Northwestern University Medical School		(1933)	Iowa
University of Louisville School of Medicine		(1932)	Kentucky
Tulane University of Louisiana School of Medicine		(1928)	Louisiana
Harvard University Medical School		(1918)	Ohio, (1934) New York
Grand Rapids Medical College		(1902)	Colorado
Marion-Sims College of Medicine, Missouri		(1899)	Texas
St. Louis University School of Medicine		(1932)	Penna.
University Medical College of Kansas City, Mo.		(1899, 2)	Missouri
University of Nebraska College of Medicine		(1929)	Nebraska
Long Island College of Medicine		(1934)	New York
University and Bellevue Hospital Medical College		(1903)	New York
University of Buffalo School of Medicine		(1935)	New York
University of Tennessee College of Medicine		(1925) (1935)	Oklahoma, Tennessee
Baylor University College of Medicine		(1932), (1933), (1935), (1936)	Texas
University of Texas School of Medicine		(1933)	Texas

Book Notices

Diseases of the Coronary Arteries and Cardiac Pain. Edited by Robert L. Levy, M.D., Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University, New York City. Cloth. Price, $6. Pp. 445, with 97 illustrations. New York: Macmillan Company, 1936.

This is in reality a series of short reviews by noted American authorities on various aspects of this important medical problem. As the editor explains, the various chapters are wholly the views of the individual contributors, and consequently it is not surprising to find conflicting opinions expressed. This book is after all a survey of the present status of a field that is still new and constantly changing. Nevertheless, the careful student will find the book of inestimable value, since the survey of each particular phase is by a recognized authority in the field. That these reviews are admittedly biased when dealing with the borderlines of knowledge is a favorable rather than an unfavorable aspect of the book. Knowledge cannot be dissociated from personalities, and it is much more illuminating to know the point of view of an authority actively at work in a field than a more noncommittal assay by a reviewer of literature. In addition to the specialist, the medical student, the general practitioner and the internist will find themselves well repaid in reading the simple authoritative presentations of the so-called more practical sections of the book, although they may soon get lost in the intricacies of the technical arguments of certain of the "less practical" sections.

The introduction is written by A. E. Cohn in his usual delightful philosophic tone. The historical note written by J. B. Herrick presents the development of the subject and the American contributions clearly and with much too much modesty in regard to the historical importance of his own pioneer contributions in 1912 and later. J. T. Wearn, while perhaps unduly stressing direct communications between coronary arteries and heart cavities, gives a fair assay of the anatomy of the coronary system. C. J. Wiggers gives a detailed and intricate presentation of the physiology of the coronary circulation. It is a good summary of the recent work of his laboratory interpolated in the light of work done by other investigators. A simpler presentation or at least a summary would have enhanced this excellent chapter. The chapter on pharmacology by F. M. Smith gives a straightforward account of present knowledge. W. C. von Glahn, in comparison with other chapters, has dealt much too elementarily with the subject of the pathology of the coronary vessels. J. C. White's chapter on the pathways followed in the nerve plexuses by the pain fibers is excellent, and the physiology of cardiac pain written by C. J. Wiggers is a gem of original coordinated reviewing and description that will repay careful scrutiny. L. I. Dublin, in his chapter, has clearly pointed out the way in which statistics can be usefully applied to advance knowledge of disease. R. L. Levy in the next two chapters gives a straighforward clinical description of coronary diseases of the arteriosclerotic and syphilitic varieties. W. J. Kerr devotes a lengthy chapter of the more uncommon disturbances of the coronary arteries; particularly excellent is his summary of the history of periarteritis nodosa. P. D. White has presented an excellent clinical assay on cardiac pain, showing that the art of pure clinical description is not yet lost. The chapter on electrocardiography by F. N. Wilson is well presented and beautifully illustrated and, while biased in certain directions, merits careful perusal. The medical management of coronary diseases is dealt with as a practical problem by R. L. Levy in a brief, clear and authoritative fashion in two chapters. J. C. White presents the status of surgical methods for the relief of pain and stresses the value of paravertebral alcohol injection. The more recent surgical procedures still in their experimental stage are presented in the last two chapters by their proponents, H. L. Blumgart on complete thyroidectomy and C. S. Beck on the development of a new blood supply to the heart. Both these authors are cautious to point out that their procedures demand considerable further trial before they can be accepted as established methods of treatment.

This monograph of an advance in medical knowledge, primarily American in its source and development, is a meritorious undertaking, permitting the reader to obtain an inventory of what the advances actually have been.

Die Prophylaxe der Schlafstörung. Von Dr. med. habil. Paul Vogler, Dozent an der Universität Berlin. Boards. Price, 5.80 marks. Pp. 130. Leipzig: Georg Thieme, 1937.

The author tells us that he is not going to add another to the already great number of experimental studies on the problems of sleep. He would cultivate but a sector of this assemblage, and that relates itself to the clinical and prophylactic aspects of the situation, hydrotherapy being especially accented. In order however to afford a foundation, he reviews some of the underlying studies, thus offering a rapid summary of a few of the leading hypotheses and theories, chiefly of the physiologic schools. Thus there are brief references to the work of Hess, of Pavlov, of von Economo and of a few others of less significance. Almost apologetically, Freud's conceptions are given in smaller type, and at the end of four pages the astonishing statement is made that the freudian contributions offer no extensive study of sleep as a psychologic problem (p. 28). As only Freud's 1930 "Lectures" are quoted even in the bibliography, and Hoche's totally inadequate handling of the dream problem is frequently referred to, this show of ignorance is quite understandable on this, if not on deeper, grounds.

Dr. Vogler would posit four "fundamental" sleep factors. They are quite banal. They are sleep fatigue, the sleeping room, beds, and habits of sleep. To these sections on food supply are added light and air, equally quite superficial factors. The falling asleep, length of sleep, periodicity, and the sleep of childhood are briefly discussed and a short and inadequate note is presented on sleep walking and on the hallucinatory stages of the beginnings of sleep, also quite superficial. Thus, with reference to the latter, no mention is made in the text or the bibliography of Silberer's careful study of these hypnagogic phenomena.

Some trivial case histories are next reported and the text moves on to therapy. Goldscheider's dictum that hypnotics should be prescribed only when psychologic, physical and dietetic methods are not applicable is quoted with partial approval and emendation. Analgesic hypnotics are desirable in the presence of pain. There are three pages devoted to psychotherapy so general as to mean nothing. The final pages deal with various hydrotherapeutic procedures, chiefly the "pack," with a page or two on the continuous bath. A bibliography almost entirely of German writers closes this small brochure, which, though it has its spots of good grazing, is rather sparse feeding at best.

The Problem of Anxiety. By Sigmund Freud. Translated from the German by Henry Alden Bunker, M.D. Cloth. Price, $2. Pp. 165. Albany: Psychoanalytic Quarterly Press, New York: W. W. Norton & Company, Inc., 1936.

This is an English translation of Professor Freud's "Hemmung, Symptom und Angst" written about ten years ago. It is one of the most important of Freud's recent contributions to psychology and is a corner-stone to contemporary psychoanalysis. Critics and commentators outside the field of analysis have for the most part been ignorant of the recent work of Freud and have praised or attacked psychoanalysis on the basis of his early work. Now there can be no excuse for overlooking the modern trends in analysis. The translator has kept to Freud's style of writing to a large degree.

Freud begins his book by differentiating inhibition from symptom. Inhibition is related to function but is not necessarily pathologic. It may be a symptom, but symptoms are always pathologic. Inhibitions are renunciations of functions that would give rise to anxiety if they were begun, as in hysteria. Inhibitions are functional limitations of the ego in order that there may be no indulgence in symbolic gratification of the repressed, thus avoiding conflict with the id, or in order to renounce gratification because of self punishment, thus avoiding conflict with the super ego.

Symptoms are substitute gratifications of what has been repressed by the ego at the command of the super ego. The ego is ordinarily quite powerless, but it does control the development of ideas and emotions into consciousness. In struggles of repression it can give a signal of distress. It can withdraw a charge from the preconscious representation of instinctive impulses and utilize such charges to produce "unpleasure" in the form of anxiety. Thus the ego is the real source of anxiety. The super ego is not the source of anxiety, since anxiety may occur before the super ego development when the

attempt to bind excessively powerful stimuli fails as a safety device. The appearance of anxiety in primal repression means that it is a biologic reaction conditioned on the first prototype of the physical manifestations of anxiety; i. e., those symptoms of dyspnea, tachycardia, and the like, appearing at the birth trauma.

Anxiety is something felt of an unpleasant character; it is accompanied by an efferent discharge in the vegetative sphere. It is these efferent discharges which reproduce the birth trauma. Birth is a physical danger with the psychologic component of basic or primal anxiety at separation from the mother. Anxiety then becomes an automatic phenomenon and a safety signal of psychic helplessness. Object loss is the precondition of anxiety. Danger of castration is danger of forever preventing reunion with the mother and identical with a second separation from her. Fear of castration at the hands of the rival father is internalized to fear of the super ego and dread of conscience or social anxiety. Thus the ego is the real source of anxiety. One must not restrict anxiety to castration fear but anxiety appears with danger of psychic helplessness in immaturity, with danger of loss of loved object in early childhood, castration fear in the phallic phase, and dread of the super ego in the latent period. In hysteria there is fear of loss of love, threat of castration in phobias and dread of the super ego in the compulsions.

Symptoms develop in order to avoid anxiety or, better said, anxiety causes symptom formation. The ego protects itself from outer danger by modifying the instinctual forces permanently because infantile objects of anxiety persist throughout life. There is a permanent reaction to danger. In the final analysis, according to present knowledge, the specific principles underlying the development of neurotic symptoms are three in number: 1. Biologic helplessness and dependence of the human infant thrust unfinished into a dangerous environment necessitating protection, care and great love. 2. Phylogenetic early demands of sexuality on the child with abrupt appearance of a latent period at the age of 5. The early demands on the child and his inability to compete have the same effect on his ego as premature contact with the world at his birth. 3. Psychologic lack of adequate differentiation of ego from id within the psychic apparatus. The dangers of reality force the ego to treat its instinctual impulses as dangers. In combating the id which is intimately connected with the ego, the ego must put restrictions or inhibitions before itself, tolerate symptoms and suffer neurotically.

This bare sketch of Freud's work does not do justice to his masterful work. The book should be thoroughly studied in order to grasp Freud's insight into human psychology and for the purpose of really understanding an important part of modern psychoanalysis.

Behandlung der Verletzungen und Eiterungen an Fingern und Hand. Von Professor Dr. M. zur Verth, Privatdozent der Universität Hamburg. Second edition. Paper. Price, 8.70 marks. Pp. 164, with 59 illustrations. Berlin: Julius Springer, 1936.

This little volume is a revision of the author's monographs "Introduction to the Treatment of Injuries of the Fingers and Hand" and "The Panaritium," combined under one title. Thirty pages are devoted to various types of compound injuries, two to tendon injuries, one to nerve injuries and forty-eight to fractures and dislocations of the phalanges and the metacarpal and carpal bones. The remainder of the volume, approximately one half, is devoted to infections of the fingers and hand. The work is concise, well written and well illustrated, particularly in its excellent reproductions of x-ray films. The author is one of the few continental surgeons who have carefully studied Kanavel's contributions on infections of the hand and attempted to present his conclusions. His presentation is not always quite in accord with what are understood to be Kanavel's conceptions. For example, in illustrating the incisions for draining an infection involving flexor tendon sheaths of the thumb and little finger and the radial and ulnar bursae (p. 136) the author indicates short bilateral incisions over the volar surface of the little finger instead of a single long incision on the ulnar side of the finger, and a long incision directly over the muscular mass of the thenar eminence. The latter incision, if deep enough to reach the sheath of the long flexor tendon of the thumb, would surely result in division of the important motor nerve to the thenar muscles. Although one might be critical of a number of more or less important details, the book as a whole deserves praise and commendation. It exemplifies the effort of a thoughtful and industrious surgeon to improve the care of common and important injuries and infections that often result in serious loss of function.

Essentials of Oral Surgery. By Vilray Papin Blair, A.M., M.D., F.A.C.S., Professor of Clinical Surgery in the School of Medicine, Washington University, St. Louis, and Robert Henry Ivy, M.D., D.D.S., F.A.C.S., Professor of Maxillo-Facial Surgery in the Graduate School of Medicine, University of Pennsylvania, Philadelphia. With the collaboration of James Barrett Brown, M.D., F.A.C.S., Associate Professor of Clinical Surgery in the School of Medicine, Washington University, St. Louis. Second edition. Cloth. Price, $6.50. Pp. 606, with 445 illustrations. St. Louis: C. V. Mosby Company, 1936.

Since the publication of the first edition in 1923, this has been recognized as a valuable text and reference book for students and practitioners. The subject matter is well arranged and the topics are adequately discussed. The authors have successfully avoided one tendency that is common in most textbooks on oral surgery: they have refrained from placing undue emphasis on rare, unusual diseases and treatment and have considered the relative frequency with which diseases occur and gaged their presentation from that point of view. As a result, the reader is given a better understanding of the diseases most commonly met. The chapter on anesthesia is most complete. Indications and contraindications for administering both local and general anesthetics are considered. The authors describe a definite technic for introducing the anesthetic, which, if followed carefully, will bring the desired results. Accidents that may occur and the way to take care of the resulting situations are discussed frankly. The paragraph dealing with ethyl chloride anesthesia could proably be eliminated. After describing its use in several regions, the authors state that "it is not successfully applied to these regions." The chapter on surgical preparation of the mouth for artificial dentures by Dr. Kazanjian is a valuable addition to the book. There is little doubt of the great value of Dr. Kazanjian's contributions to this phase of oral surgery. However, his description of the treatment of abnormally prominent alveolar ridges of the upper jaws is rather more complicated than is necessary. Suturing through the skin and then placing dressings on the face appear to be too involved and dangerous, especially since there is a more simple method that is effective.

Practice of Pediatrics. By Various Authors. Edited by Joseph Brennemann, Ph.B., M.D., Chief of Staff, Children's Memorial Hospital, Chicago, Ill. In four volumes and index volume. Fabrikoid. Loose-leaf. Price, $63 per set. Various pagination, with illustrations. Hagerstown, Maryland: W. F. Prior Company, Inc., 1937.

The systems of medicine published by the Prior Company already include Tice's Practice of Medicine, Lewis's Practice of Surgery, the Practice of Physical Therapy, Gynecology and Obstetrics, and now comes the Practice of Pediatrics, edited by Dr. Joseph Brennemann, chief of staff of the Children's Memorial Hospital, Chicago. In its make-up, printing, loose-leaf form and other significant typographic aspects, Brennemann's Pediatrics resembles the previously published systems. It has a total of more than a hundred contributors. It differs, of course, from the several previously published systems of pediatrics in being the first in a loose-leaf form. It is planned particularly for the general practitioner and the student rather than for the specialist. It gives perhaps more attention to treatment than has been given by previous systems of pediatrics. The hundred contributors include numbers of American pediatricians, immunologists, psychiatrists, hygienists and other specialists who have been interested in pediatrics.

The history of pediatrics is provided by Dr. Isaac Abt, who prepared a similar contribution, including a history of medical encyclopedias for his own system of pediatrics. In this history pediatrics is considered nation by nation, in the United States, state by state. It is interesting to observe which of the living pediatricians the author has selected for special comment.

The volumes then proceed with an introduction to pediatrics by Blackfan, after which comes the section on heredity and environment, by H. S. Jennings.

It is not possible in the scope of a review such as this to make separate comment on all the articles, and it would be invidious to select any one as deserving of special comment.

The illustrations, some in color, have been wisely chosen and well distributed throughout the work. The volumes following the first, which is of a general character, proceed to discuss the infectious diseases, the diseases of special systems and portions of the human body. It concludes with the nervous system, disorders of speech, and such special topics as orthopedics, arthritis, the appendages, the skin and burns.

The work is well edited. It is easily readable and most easy of reference. Any practitioner requiring a system of pediatrics which is bound to yield valuable dividends in the form of accurate information when needed will find this "Practice of Pediatrics" an excellent investment.

Williams Obstetrics: A Textbook for the Use of Students and Practitioners. By Henricus J. Stander, M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Cornell University Medical College. Seventh edition: A revision and enlargement of the text originally written by J. Whitridge Williams. Cloth. Price, $10. Pp. 1,269, with 747 illustrations. New York & London: D. Appleton-Century Company, Inc., 1936.

On October 21, 1931, a year after he had completed the revised sixth edition of his textbook, Dr. Williams died at the age of 65. The book had made for itself a definite place in the literature of medicine. It had been widely recommended by teachers in our best medical schools and it has seemed desirable that the work be continued under new editorship. Dr. Stander is professor of obstetrics and gynecology in Cornell University Medical College. He has been aided in the revision of the work by many former pupils of Dr. Williams as well as by other obstetricians, who provided new data and new illustrations. The author points out that in the present edition certain sections are being rewritten, although attempts were made to retain as much of Dr. Williams' last edition as consistent in new developments of obstetrics. Three new chapters have been added, one dealing with hormones as related to pregnancy and the puerperium, one on urinary complications (particularly pyelitis), and the third on anesthesia and analgesia. Many of the illustrations are new and many of the older ones have been retouched, this work being in charge of Miss Elizabeth Broedel under the guidance of her distinguished father, Max Broedel, the well known artist of the Johns Hopkins Medical School. As has already been said, it is well to have this excellent textbook kept up to date and made available for those who first learned their obstetrics from its pages and who still feel that it represents the ideal work for the purpose.

Historical Notes on Psychiatry (Early Times—End of 16th Century). By J. R. Whitwell, M.B., Hon. Lib., Royal Medico-Psychological Association. Cloth. Price, 10s. 6d. Pp. 252. London: H. K. Lewis & Co., Ltd., 1936.

This volume endeavors to trace the process of evolution through which psychiatry passed from early times to the end of the sixteenth century. It includes first the ancient writers, then quotations from the Bible, the Talmud and the Koran, next cases from the classics, the philosophers and the classical medical writers, and finally translations and extracts from great numbers of writers of the earlier periods. As a source book in the early history of psychiatry it represents a fine reference. For the psychiatrist particularly it will offer an interesting exercise in modern diagnosis on the basis of ancient descriptions.

Into This Universe: The Story of Human Birth. By Alan Frank Guttmacher, Associate in Obstetrics, Johns Hopkins University. Cloth. Price, $2.75. Pp. 366, with 15 illustrations. New York: Viking Press, 1937.

The figurative title to this work is supplemented by the more definite statement "The Story of Human Birth." The book is based largely on questions that have been raised by patients, students and laymen who wanted to know not only the bare facts of childbirth but also the relationship of childbirth to many other activities of life and living. Dr. Guttmacher's previous work, entitled "Life in the Making," was an attractive volume which similarly answered many questions. His literary style is pleasant; his ability to turn exposition into narrative, extraordinarily competent. He has collected a vast amount of interesting material and his chapters on maternal impressions, spontaneous birth, cesarean section and similar subjects will be informative not only to the public but also to many physicians. An unusual feature is the musical scoring of the sounds of pain in labor as contrasted with the expression of pain under ordinary circumstances. The volume is an extraordinary collection of facts related to childbirth from every point of view. It is supplemented by a well chosen bibliography and a fine index.

On the State of the Public Health: Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1935. Paper. Price, 3s. 6d. Pp. 238. London: His Majesty's Stationery Office, 1936.

In this annual report, Sir Arthur MacNalty makes available the vital statistics of Great Britain for the year 1935. The report is of special interest because it is concerned not only with the records of population and infectious disease but also with maternity and child welfare, the insurance medical service, the relationship of food to health and disease, and, finally, medical research. In the report on the insurance medical service it is pointed out that 8,000,000 insured persons seek medical attendance and that over 50,000,000 attendances are given each year by the doctors. During 1935 there were 157 cases of complaints regarding the adequacy of the service in that year. In 1935 the number of insured persons was 15,869,000 and the number of insured practitioners was 16,600. The total cost, exclusive of administration, was £9,449,900. The authorities are somewhat disturbed over the gradual increase in the prescribing of drugs, which apparently is unexplainable. The authorities feel that a large percentage of the present physicking of the population is wholly unnecessary and that the medical profession of Great Britain is being careless in overprescribing. It asks the insurance practitioners to give due thought to their responsibility in this matter.

Physiology and Anatomy. By Esther M. Greisheimer, M.A., Ph.D., M.D., Professor of Physiology, Woman's Medical College of Pennsylvania. Philadelphia. Lippincott's Nursing Manuals. Third edition. Cloth. Price, $3. Pp. 706, with 401 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1936.

This book has gone into the third edition since July 1932, and each of the previous editions has been reviewed in THE JOURNAL. In this edition, recent information concerning vitamins and internal secretions has been added, and the chapters on the nervous system and the special senses have been reorganized. The general plan of the book, however, is the same as in previous editions; that is, the author endeavors to provide a textbook setting forth in simple language and in many carefully selected pictures the fundamental knowledge of physiology and anatomy. The book is intended primarily for nurses and other nonmedical students. The discussions must necessarily be brief since these two large subjects are covered within the 706 pages of a rather small book, including the pages given over to the glossary in the back and the index. The illustrations have been well planned. In fact, the whole book seems well adapted to the purpose as expressed by the author.

Clinical Psychology: A Handbook of Children's Behavior Problems. By C. M. Louttit, Director, Indiana University Psychological Clinics. With a foreword by L. T. Meiks, M.D., Pediatrician-in-charge, James Whitcomb Riley Hospital for Children. Cloth. Price, $3.50. Pp. 695, with 21 illustrations. New York and London: Harper & Brothers Publishers, 1936.

There are certain phases of clinical psychology that are particularly concerned with medical problems; for example, those associated with intelligence and special abilities, behavior problems in children, and psychologic problems connected with various organic disabilities, such as speech, blindness, crippling and hearing. The author of this volume has had clinical experience in the University of Indiana at Bloomington and at the James Whitcomb Riley Hospital for Children in Indianapolis. His book reflects that experience as well as wide knowledge of the available literature in his field. By means of well selected case reports he reflects adequately the type of work that confronts the clinical psychologist today. Some of his records in the field of juvenile delinquency are particularly illuminating. The book is an excellent reference work in its field and should be helpful to all who are especially interested in the problems that it concerns.

Yubileyny sbornik nauchnykh trudov Omskogo Meditsinskogo Instituta, 1920-1935. Pod otvetstvennoy redaktsiey direktora Meditsinskogo Instituta I. I. Sysoeva. [Jubilee Collection of Scientific Works of Omsk Medical Institute, 1920-1935.] Paper. Gratis. Pp. 200, with illustrations. Omsk: The Institute, 1935.

This is a collection of papers published by the institute on the occasion of the fifteenth anniversary of its establishment.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Optometry Practice Acts: Corporate Practice of Optometry Through Licensed Optometrists Lawful in Maryland.—The Castelberg Jewelry Corporation maintained stores for the sale of jewelry, silverware, optical goods, ornaments and other wares of the same general character. In connection therewith, it operated departments for the sale of eyeglasses. To stimulate that part of its business, it furnished optometrical services, employing registered optometrists and supplying them with offices and with instruments and mechanical appliances. The Maryland Association of Optometrists, the Maryland State Board of Examiners in Optometry and the members of that board as individuals brought suit against the corporation to enjoin it from engaging in the practice of optometry in the state. The trial court dismissed the case, and the plaintiffs appealed to the Court of Appeals of Maryland.

It may well be doubted, said the court, whether the board of examiners, as such, has power to institute the present action. Its duties do not include that of enforcing the provisions of the optometry act by civil litigation. Too, the Maryland Association of Optometrists has no property interest affected by the defendant's acts, and its right to sue is not apparent. With respect to the members of the examining board, suing as individuals, there is authority of some persuasive force which sustains their right to equitable relief against illegal competition. The right of any of the plaintiffs to maintain the present action, however, was not determined, because the defendant did not raise the point. The important question, said the Court of Appeals, is whether one who offers to furnish, or does actually furnish through the agency of a registered optometrist, such service as may be required to determine whether persons applying therefor need eyeglasses, and if so what kind of eyeglasses they need, is himself practicing optometry within the meaning of the optometry practice act. The purpose of the act, said the court, is not to protect the financial interests of persons engaged in the practice of optometry; it is to protect the public against injury or harm which might result if ignorant, unskilful or incompetent persons are permitted to offer their services as optometrists indiscriminately. Optometry is essentially a mechanical art which requires skill and manual dexterity. It requires a knowledge of the use of certain mechanical instruments and appliances designed to measure and record the errors and deviations from the normal which may be found in the human eye. It does not require the knowledge and the learning appropriate to professions or callings which deal with causes and conduct rather than with conditions and effects. It is, continued the court, in its nature empirical rather than learned. While literally the word "profession" may be applied to any calling requiring special knowledge of some branch of science or learning, historically and ordinarily it is limited to such vocations as the law, the ministry, medicine, military science, engineering, and the like. Its use in connection with the practice of optometry is merely illustrative of a euphemistic trend apparent in recent years of converting age-old and common callings into "something new and strange," not by changing their characteristics but by describing them in more dignified and sonorous terms.

The provisions of the Maryland optometry practice act sufficiently manifest an intention that no one shall be permitted physically and manually to practice optometry who does not hold the registration certificate issued by the board as evidence of the statutory qualification. The adequate protection of the public health requires no more than that. Beyond that the legislature did not go. The contention is legally unsound that optometry is a learned profession and that a sound public policy denies the right to any one to exploit and commercialize it by furnishing the service incident to the business through the agency of others. There is no public policy which forbids the commercialization of optometry. The business of optometry is that of testing eyesight and selling glasses, and whatever the selling part of it may be called, it is commercial in its nature and to prohibit its commercialization would be to prohibit the business altogether.

If, the court said, support were needed for the conclusion that the optometry practice act does not prohibit corporations from supplying optometrical services through licensed optometrists, it would be found in the long continued contemporaneous construction given the act by the administrative agencies of the state and by those engaged in the business. For twenty-one years the usage of which the plaintiffs now complain has been widespread and, other than an effort to obtain the enactment of legislation in 1935, no attempt appears to have been made to prevent it. While that fact cannot be accepted, the court said, as conclusive or controlling, nevertheless if the act were open to construction, it would be entitled to serious consideration. The decree appealed from was affirmed.—*Dvorine v. Castelberg Jewelry Corporation (Md.), 185 A. 562.*

Charitable Hospitals: Liability for Negligence of Nurses.—An operation was performed on the plaintiff's wife in the defendant hospital. Following the operation, an intern ordered the injection of a saline solution. Owing to the negligence of a nurse, a boric acid solution was injected instead of the saline solution, resulting in the death of the patient. The plaintiff thereupon sued the hospital. The trial court gave judgment for the plaintiff, and the court of appeals reversed that judgment and remanded the cause. On the motion of both parties, the case was certified to the Supreme Court of Ohio.

There was ample testimony, said the Supreme Court, that the hospital was operated as a public charity. It was therefore not liable for injury to a patient resulting from the negligence of a nurse, unless it failed to exercise due care in the selection or retention of the nurse who caused the injury. The burden of showing such lack of care rested on the plaintiff. The record in the present case showed that the nurses in charge of the patient were graduate nurses, with long training and experience. The plaintiff presented no evidence that the hospital authorities had been lacking in care in selecting or retaining them and certainly, said the court, the hospital authorities should not be charged with lack of due care when the incompetence of the nurse appeared for the first time after the operation. In view of these circumstances, the court concluded, the court of appeals should not have remanded the case for a new trial but should have rendered final judgment for the hospital. The judgment of the court of appeals in remanding the case was therefore reversed and judgment rendered for the hospital.—*Kovar v. Lakeside Hospital (Ohio), 2 N. E. (2d) 857.*

Malpractice: Refusal of Physician to Accept Patient.—The plaintiff was an employee of the Milledgeville State Hospital, an institution owned and operated by the state of Georgia. The defendant, a physician, was the superintendent of the hospital. The report of the case does not disclose the nature of the plaintiff's illness but apparently she applied to the defendant for relief and he refused to treat her. Thereafter she instituted a malpractice suit against him. The trial court dismissed the action, and the plaintiff sought a reversal in the court of appeals of Georgia, division 1.

The plaintiff's petition, said the appellate court, failed to show that the relationship of physician and patient existed between the plaintiff and the defendant. On the contrary, it repeatedly alleged the refusal of the defendant to do anything for her. Merely because the defendant was a physician and knew of the condition of the plaintiff would not devolve on him the duty of rendering medical care to her, even though the plaintiff applied to him for treatment. There is no rule of law that requires a physician to undertake the treatment of every patient who applies to him. "An act requiring a license before a person practices medicine is essentially a preventive, not a compulsory measure, and one who has secured a license according to statute is not liable for damages alleged to result from the refusal to take a case." 21 R. C. L. 379; *Hurley* v. *Eddingfield*, 156 Ind. 416, 59 N. E. 1058, 53 L. R. A. 135, 83 Am. St. Rep. 198.

Nor did the plaintiff automatically become a patient of the defendant because of their respective relationships to the hospital. While it is a general rule that "the physicians and surgeons of a hospital, public or private, enter into the relation of physician and patient with every patient brought into the

hospital as soon as he is brought in," 21 R. C. L. 376, there was no evidence that the plaintiff was a patient in the hospital. The defendant was required "to reside constantly on the premises, and devote his professional services exclusively to the use of the Hospital. . . . To discharge all duties in any way connected with the restoration to health or sanity of the inmates." The statute relating to the hospital provided that "lunatics, epileptics, idiots, and demented inebriates, may become inmates of the hospital and shall be admitted to, and discharged from, the Hospital under such rules and regulations as the Board of Control shall prescribe." The petition filed by the plaintiff, however, failed to allege that she came within any of the enumerated classes.

The trial court did not err, in the opinion of the appellate court, in dismissing the petition, and the judgment of the lower court was affirmed.—*Butterworth v. Swint (Ga.), 186 S. E. 770.*

Charitable Hospitals: Liability to Visitor; Indemnity Insurance as Affecting Liability.—The plaintiff's husband was a pay patient in the defendant hospital, an institution incorporated and operated for charitable purposes. On a visit to her husband, the plaintiff slipped on a floor and fractured her left wrist and hip and thereafter sued the hospital for damages. The hospital interposed as a defense, among others, the fact that it was a charitable institution. Admitting the status of the hospital and that its trust funds could not be used to satisfy any damages that might be awarded, the plaintiff alleged in her pleadings that the hospital had taken out a liability insurance policy, that the recovery of damages to which plaintiff was entitled would be paid by the insurance company, and that therefore none of the trust funds of the hospital would be dissipated. The defendant demurred to this pleading. The trial court ruled that the existence of the insurance policy did not render the hospital liable in any case in which it was not otherwise liable for its negligence and that, since the plaintiff had admitted that the trust funds of the hospital could not be used to pay damages, the defendant's demurrer would have to be sustained. The plaintiff thereupon appealed to the Supreme Court of Tennessee.

The fact that the defendant carried a liability insurance policy, said the Supreme Court, gave the plaintiff no additional rights and imposed no additional obligations on the defendant. While the record showed that the plaintiff's husband was a pay patient in the hospital, the court was unable to see that that fact had any bearing on the liability, if any, of the hospital to the plaintiff, for the injuries complained of did not arise out of any treatment to the patient. Furthermore, the court said, the exemption extended to a charitable institution for a tort is not changed by reason of the fact that the patient pays for the services rendered. The determinative question in this case, the court continued, is whether the defendant was wholly exempt from liability, irrespective of the fact that the plaintiff was not a beneficiary of the charity. The rule of exemption of charitable institutions, said the court, is by no means of universal application. In Minnesota it is held that charitable institutions are liable for their negligence as are other institutions. *Geiger* v. *Simpson Methodist-Episcopal Church,* 174 Minn. 389, 219 N. W. 463. In Tennessee, a broad rule of nonliability was laid down in *Abston* v. *Waldon Academy,* 118 Tenn. 24, 102 S. W. 351, but that decision was later criticized in *Love* v. *Nashville Agricultural and Normal Institute,* 146 Tenn. 550, 243 S. W. 304, in which case recovery was permitted against a charitable institution for creating a nuisance, the pollution of a spring. Furthermore, in *Gamble* v. *Vanderbilt University,* 138 Tenn. 616, 200 S. W. 510, the court recognized the university's liability for a tort committed by one of its servants. In the present case, therefore, the court failed to see the justice in exempting charitable institutions from liability for injuries sustained by one who was not a beneficiary of the trust. Taking this view of the matter, the court said, the defendant's plea of exemption on the ground that it was a charitable institution was not a sufficient defense and the trial court should have so held and should have proceeded to try the case on its merits. The judgment of the trial court was therefore reversed and the case remanded for trial.—*McLeod v. St. Thomas Hospital (Tenn.), 95 S. W. (2d) 917.*

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, May 6-7. Dr. Volney S. Cheney, Union Stock Yards, Chicago, Secretary.

American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.

American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.

American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.

American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.

American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Pediatric Society, Hot Springs, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.

American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.

American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Surgical Association, New York, June 3-5. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.

Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8, Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8, Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.

Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.

Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.

Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.

Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.

Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.

Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 10-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.

New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.
Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

53: 673-932 (March) 1937

*Stages, Prognosis and Duration of Glomerular Nephritis in Childhood. A. W. Snoke, San Francisco.—p. 673.
Insensible Perspiration in Children: III. Statistical Correlation of Insensible Perspiration and Basal Metabolism. G. J. Ginandes and Anne Topper, New York.—p. 705.
Variable Course of Pertussis: Does Haemophilus Pertussis Undenatured Bacterial Antigen Alter It? J. J. Miller Jr. and Charlotte Singer-Brooks, San Francisco.—p. 720.
Physical Status of 219 Pueblo Indian Children. Ethel C. Dunham, Washington, D. C.; Sophie D. Aberle, Albuquerque, N. M.; Lucile Farquhar and M. D'Amico, New Haven, Conn.—p. 739.
*Use of Convalescent Serum in Prevention of Chickenpox. J. M. Lewis, L. H. Barenberg and G. Grossman, New York.—p. 750.
Comparison of Antirachitic Effects on Human Beings of Vitamin D from Different Sources. T. G. H. Drake, Toronto.—p. 754.
*Prophylaxis of Whooping Cough. F. M. Meader, Detroit.—p. 760.
Human Milk: Its Lysozyme Content and Bacterial Count. M. L. Blatt and Helen Kessler, Chicago.—p. 768.
Iron versus Iron and Copper in Treatment of Anemia in Infants. C. A. Elvehjem, Dorothy Duckles and Dorothy Reed Mendenhall, Madison, Wis.—p. 785.
Vaginitis of Children: Review of Literature. R. A. Benson and A. Steer, New York.—p. 806.

Prognosis of Glomerular Nephritis in Childhood.—Snoke points out that the existence and the persistence of latent glomerular nephritis in childhood, as in adult life, usually escape detection when quantitative examination of properly concentrated urine is not made. Glomerular nephritis commonly, if not invariably, enters a latent stage after the initial stage. The initial stage often is overlooked when gross hematuria or fulminating symptoms are absent. Latent glomerular nephritis may terminate in healing or may pass on to the degenerative stage or to the terminal stage, and its duration is enormously variable. The later stages frequently do not occur till some period of adult life. Between 1920 and 1936, 154 children with glomerular nephritis have been followed: fifty-seven of these have now recovered, thirty-three are dead and sixty-four still have active nephritis, thirty-five of whom have been in that stage for more than two years and six for more than ten years. With only two exceptions, both slightly doubtful, no instance of nephritis lasting more than two years has ended in recovery. An eventual fatality rate of 40 per cent for glomerular nephritis is a conservative estimate. The prognosis for the successive stages of glomerular nephritis—active, latent, degenerative and terminal—is progressively worse, the last named being uniformly fatal. The age of onset (or detection) has no significant relation to prognosis. Hypertension and increased amounts of blood urea have similar significance and tend to parallel each other; in the initial stage they have no relation to prognosis, but when they appear in the later stages they supply the first indications that the patient is entering the terminal stage of renal insufficiency. The value for blood urea does not become abnormally high as a general rule until 50 per cent or more of the renal tissue fails to function. Glomerular nephritis cannot be proved to be healed until repeated quantitative examinations of concentrated urine over a period of at least one year have been normal.

Convalescent Serum in Prevention of Chickenpox.—Lewis and his associates inoculated 10 cc. of pooled convalescent serum into twenty-three children exposed to chickenpox from one to three days previously. Nineteen children who had been exposed to chickenpox in the same wards received no inoculations and served as controls. Twenty-one children, or 91 per cent, of the treated group contracted chickenpox; eighteen children, or 95 per cent, in the untreated group had the disease. It was somewhat more severe in the children receiving convalescent serum than in those not receiving serum.

Prophylaxis of Whooping Cough.—Meader treated 115 children from 1 to 6 years of age with 10 cc. of blood serum from persons who had recovered from whooping cough. Whooping cough developed in thirty-seven, or 32.2 per cent. Whooping cough developed in eight children on the first day after the serum was given. The record in these cases should not discredit the value of the serum. The fact that the disease developed during the first six days after administration of the serum should not be counted against the serum. Twenty-one patients should therefore be excluded. Failure should be charged against the serum in only sixteen of the thirty-seven cases. For controls, 183 children of the same ages were used. These children were exposed to whooping cough but were not given blood serum from persons who had recovered from this disease. Whooping cough developed in 121, or 66 per cent. When comparable groups of treated and untreated exposed children are compared, about 72 per cent of those treated with 10 cc. of pooled convalescent serum will be protected from the disease. The incubation period is so long that while one of two children in a given family who receive the serum prophylactically at a fortuitous moment will be protected, another receiving the serum in the latter part of the incubation period will contract whooping cough, apparently having obtained no protection. The most favorable results are obtained with children in the first three years of life. This serum will therefore probably never be as spectacular in its effects as similar convalescent serum is for scarlet fever, for which a short incubation period prevails.

American J. Obstetrics and Gynecology, St. Louis

33: 183-364 (Feb.) 1937

Undergraduate Teaching of Gynecology in North America: Presidential Address. L. E. Phaneuf, Boston.—p. 183.
Generallergy and Metrallergy. J. R. Goodall and R. M. H. Power, Montreal.—p. 194.
Vaginal Hysterectomy in Prolapsus Uteri. A. D. Campbell, Montreal.—p. 209.
Bilateral Transplantation of Ureters of Female. V. S. Counseller, Rochester, Minn.—p. 234.
Fibroma of Ovary with Ascites and Hydrothorax: Report of Seven Cases. J. V. Meigs and J. W. Cass, Boston.—p. 249.
*Results of Induction of Labor in 750 Cases from Private Practice: Comparison with 750 Contemporary Consecutive Noninduced Cases. A. Mathieu and A. Holman, Portland, Ore.—p. 268.
Placental Variation: Analytic Determination of Its Clinical Importance. L. A. Calkins, Kansas City, Kan.—p. 280.
Results with Intra-Uterine Stem Pessary. W. H. Weir, Cleveland.—p. 291.
Recent Experience with New Classification of Pregnancy Complicated by Hypertension and Albuminuria. F. S. Kellogg, J. A. Smith, H. M. Teel and D. E. Reid, Boston.—p. 300.
Forceps Technic in Occipitoposterior Positions. A. K. Paine, Boston.—p. 313.
Behavior of Intravenously Injected Bilirubin in New-Born Infants. Hazel Lin, Peiping, China, and N. J. Eastman, Baltimore.—p. 317.
Abnormal Bandl Ring. G. F. Pendleton, Kansas City, Mo.—p. 324.
Essential Dysmenorrhea and Allergy. O. H. Schwarz and D. R. Smith, St. Louis.—p. 331.
The Forgotten Man in Obstetrics. P. Findley, Omaha.—p. 336.
Analgesia in Labor Considered from Standpoints of Medicine and Psychology. Gertrude Nielsen, Oklahoma City.—p. 342.
Chromic Acid for Treatment of Chronic Infective Endocervicitis. J. W. Ross, Washington, D. C.—p. 348.

Results of Induction of Labor in Cases from Private Practice.—After analyzing 750 cases of induced labor from private practice and comparing them with a consecutive, contemporary series of cases in which labor was not induced,

Mathieu and Holman reached the conclusion that the maternal and fetal morbidity and mortality were not increased by induction. Induction of labor was successful in 98 per cent of the cases. Induction was apparently not responsible for the occurrence of any pathologic condition during labor, delivery or the puerperium. In the last 550 inductions quinine was not used, and the results were apparently not affected by its omission. In the last 351 cases, if labor did not start after three or four injections of 3 minims (0.2 cc.) of solution of posterior pituitary, the membranes were artificially ruptured during induction if there were no contraindications and if they had not already ruptured. In the last 114 cases castor oil was omitted and pentobarbital was given before the hypodermic injections were started. Omission of castor oil in no way affected the success of induction. Pentobarbital has been advantageous in keeping the patient tranquil and free from pain, has not interfered with the success of the induction and has not affected the vital statistics unfavorably. In the 750 cases of induced labor there was no instance of abruptio placentae or of fetal death due to cerebral injury or birth injury. There was one instance of prolapsed cord, in a patient whose membranes ruptured spontaneously.

33: 365-546 (March) 1937. Partial Index

Prolan and Estrin in Serum and Urine of Diabetic and Nondiabetic Women During Pregnancy, with Especial Reference to Late Pregnancy Toxemia. O. W. Smith and G. Van S. Smith, Brookline, Mass., with cooperation of E. P. Joslin and Priscilla White, Boston.—p. 365.
*Diabetes Complicating Pregnancy. Priscilla White, Boston.—p. 380.
Histologic Method for Early Diagnosis of Pregnancy. B. G. Smith and E. K. Brunner, New York.—p. 404.
New Operation for Cystocele. G. D. Royston and D. K. Rose, St. Louis.—p. 421.
*Early Diagnosis of Abruptio Placentae and Its Treatment with Wheat Germ Oil. E. Shute, London, Ont.—p. 429.
Blood Phosphatase in Pregnancy. T. Meranze, D. R. Meranze and M. M. Rothman, Philadelphia.—p. 444.
Use of the Female Bitterling as Test for Male Hormone. I. S. Kleiner, A. I. Weisman and D. I. Mishkind, New York.—p. 458.
Effect of Moccasin Snake Venom (Ancistrodon Piscivorus) on Parturient and Puerperal Bleeding. E. J. Davin, F. Spielman and J. A. Rosen, New York.—p. 463.
Additional Data on Treatment of Uterine Bleeding with Snake Venom. M. A. Goldberger and S. M. Peck, New York.—p. 469.
Chorionepithelioma, with Especial Reference to Its Relative Frequency. E. A. Schumann and A. W. Voegelin, Philadelphia.—p. 473.
Control of Puerperal Sepsis in Hospital Practice. D. A. D'Esopo, New York.—p. 479.
Secondary Perineorrhaphy at Subsequent Delivery. H. V. Gayden, Nashville, Tenn., and E. D. Plass, Iowa City.—p. 484.
Congenital Hydrops Fetalis (Schridde Type). H. A. Peck and J. J. Clemmer Jr., Glens Falls, N. Y.—p. 488.
Radium Therapy in Granulosa Cell Tumor of Ovary. W. E. Studdiford, New York.—p. 495.
Placenta Accreta Found at Cesarean Section. A. Mathieu, Portland, Ore.—p. 498.
Ruptured Uterus: Peritonitis, Operation and Recovery. R. L. Barrett, New York.—p. 509.
Accidental Rupture and Successful Ligation of Umbilical Artery Before Onset of Labor. E. W. Page, Los Angeles.—p. 518.
Pregnancy and Nephrectomy. W. G. Cummings, Winnetka, Ill.—p. 526.
Velamentous Insertion of Umbilical Cord. A. J. Whitehouse, Lexington, Ky.—p. 527.

Diabetes Complicating Pregnancy.—White believes that the incidence of spontaneous abortion may be reduced by more accurate control of diabetes. Toxemia and eclampsia occur with great frequency, particularly in the youthful type of diabetes. Related to these complications is the common complication of the diabetic pregnancy, a giant fetus. Deaths in the neonatal period are largely due to congenital defects which are beyond therapeutic control, to hypoglycemia which can be corrected and to asphyxia, to which the infant of the diabetic patient is undoubtedly more liable than that of the nondiabetic, because of the greater danger of toxemic and diabetic acidosis. The treatment of the diabetic patient during pregnancy must be individualized. The diabetic woman should not have numerous pregnancies, because diabetes carries with it a morbidity hazard; but, most important of all, the potentiality of developing the disease is inherited.

Diagnosis of Abruptio Placentae and Treatment with Wheat Germ Oil.—In a series of forty-four cases of spontaneous abortion, Shute observed that 73 per cent showed evidences in the blood serum of deficiency of vitamin E. It is now generally recognized that vitamin E has great prophylactic and therapeutic value in the treatment of abortion; therefore he began to study the corresponding use of a vitamin E preparation in cases of abruptio placentae. Such an oil must be kept cold and be not more than eight weeks old. Patients first seen when placental detachment is already complete or nearly complete offer little excuse for anything but the classic measures used for such an emergency. However, a closer search for true uterine tenderness during pregnancy, combined with an early test of the blood serum for the presence of the specific hormone-vitamin imbalance, would be a great step in preventing the occurrence of such severe cases. It has been the author's experience with the less severe cases that, when properly and adequately saturated and kept saturated with vitamin E (as determined by clinical evidence and repeated tests of the serums), they have not progressed to a severe stage of placental detachment with death of the fetus. In approximately twenty hours, an adequate massive dose of from 8 to 12 drachms (32 to 48 Gm.) of bulk wheat germ oil has completely abolished the characteristic circumscribed area of uterine tenderness. The accompanying severe sacral backache and uterine cramps have subsided as rapidly. When uterine hemorrhage has been present, it has responded promptly as well. Stopping the oil therapy has often been followed by a recurrence of uterine tenderness and bleeding, which, in turn, have disappeared on further vitamin E therapy. No case recognized early and treated adequately has gone on to the severe classic type. The author's best results have been obtained in women who showed little or no evidence of an associated toxemia.

American Journal of Ophthalmology, St. Louis

20: 119-236 (Feb.) 1937

Lectures on Cataract: II. Difficulties at the Time of Cataract Operation. R. E. Wright, Madras, India.—p. 119.
Trichloroacetic Acid in Treatment of Iris Prolapse. J. W. Bettman and H. Barkan, San Francisco.—p. 131.
Sympathetic Ophthalmia: Study of Some Clinical and Pathologic Factors in Thirty-Two Cases. D. H. Trowbridge Jr., Fresno, Calif.—p. 135.
Chronic Traumatic Subdural Hematoma as Cause of Choked Disk. C. King, Cincinnati.—p. 149.
*Experimental "Exophthalmos" in Dogs. H. E. Essex and W. C. Corwin, Rochester, Minn.—p. 153.
Total Lipids of Human Cataractous and Sclerosed Lenses. P. W. Salit, Iowa City.—p. 157.
Modification of Desmarres Operation for Transplantation of Pterygium. H. Miller, Kansas City, Mo.—p. 165.
Neosynephrine: Mydriatic and Tension Reducing Actions. W. L. Post, Joplin, Mo.—p. 170.
O'Connor Cinch Operation Technic. S. A. Durr, San Diego, Calif.—p. 178.

Experimental "Exophthalmos" in Dogs.—Essex and Corwin measured the position of the eye and found that anesthetics such as sodium amytal, pentobarbital sodium and a preparation of chloral dextrose administered intravenously, cause marked enophthalmos, surgical ether anesthesia produces slight exophthalmos, and ephedrine, tyramine and electrical stimulation of the vagosympathetic nerve of dogs anesthetized with certain intravenous anesthetics cause the eye to advance almost to the position seen when the animal is in a conscious state. In the unanesthetized animal, ephedrine and tyramine in appropriate doses do not produce an exophthalmos worthy of note. Tyramine causes the muscular cone of the eye of a dog under anesthesia with pentobarbital sodium to constrict in an identical manner and for a period comparable to that resulting from electrical stimulation of the cut vagosympathetic nerve. Repeated daily doses of tyramine do not cause exophthalmos in normal or experimentally thyrotoxic dogs.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

18: 65-128 (Feb.) 1937

Short Wave Currents. W. Bierman, New York.—p. 71.
*Short Wave Diathermy in Pulmonary Infections. S. Fiandaca, Palermo, Italy.—p. 79.
Cancer Therapy by Electrosurgery and Radium. I. I. Kaplan, New York.—p. 92.
Electro-Endothermy in Combined Treatment of Tumors. Isabel Mona Scharnagel, New York.—p. 95.
Electrical Shocks: Causes, Incidence and Consequences. D. Macfarlan, Philadelphia.—p. 99.
Iontophoresis of Varicose Ulcers. J. Kovacs, New York.—p. 103.

Short Wave Diathermy in Treatment of Pulmonary Infections.—Fiandaca shows the efficacy of short wave therapy by reporting twelve cases of pulmonary infections, only two of which were not benefited. Hemoptysis occurred in one case and the failure in the other one is explained by the distribution

of the bronchiectatic suppurative process. Hemoptysis can be corrected and avoided by the initial administration of weak doses administered over a longer period. Examination of the cases under consideration discloses that metapneumonic abscesses are the most sensitive to short wave therapy, while those of bronchiectatic origin are the most resistant. In three cases of bronchiectasis without abscess treated by short wave the results were merely a slight and temporary benefit. The appearance of vomitus marked the beginning of symptomatic improvement in three cases. Of the diverse symptoms pain, as a general rule, is the first to disappear. Fever at first becomes worse, then intermittent and finally decreases and disappears entirely. Expectoration is the most persistent phenomenon, at first losing its fetor, then the purulence, and finally remaining as seromucous sputum for some time. Strong dosage is essential if a pulmonary infection is to be cured, but treatment should be initiated with great care and with small dosage when this form of therapy is administered as a last resort. Observations do not appear to justify confirmation of a specific action of the short wave in the determination of bacterial form, especially if the multiplicity of the etiologic factors in every pulmonary abscess is considered. It appears more probable that the beneficial effect of short wave diathermy on pulmonary abscesses is ascribable to the anatomic structure and function of the lungs, which, according to Schliephake, present a special suitability to this kind of treatment, as compared with other structures of the human system. The alveolar structure of the lung through which the energy is radiated presents a lessened resistance, while the pulmonary ventilation and the rich vascular net prevent undue concentration of energy in the form of heat. These characteristics facilitate the application of relatively intense doses to a normal lung, but this would prove of little value for the control of a lesion with its break in the continuity of the spongy tissue and reduced blood supply. Naturally any such lesion would present intense reaction to a large dose. Pulmonary tissue proper would obtain a beneficial effect from stronger doses of short wave diathermy without at the same time producing lasting damage to the normal structures.

Canadian Medical Association Journal, Montreal

36: 223-338 (March) 1937

Specific Tissue Reaction to Phospholipids: Suggested Explanation for Similarity of Lesions of Silicosis and Pulmonary Tuberculosis. J. T. Fallon, Toronto.—p. 223.
Histologic Variations in Fetal Calves' Thyroids and Comparison with Maternal Thyroids. A. C. Abbott and J. Prendergast, Winnipeg, Manit.—p. 228.
Production of Tumor and Tumor-like Growths in Rats. J. E. Davis, Chicago.—p. 237.
"Cascade Stomach" Associated with Impaired Esophageal Emptying in Case of "Nervous Indigestion." J. W. Macleod, Montreal.—p. 242.
Radiologic Findings in Case of Acute Pancreatic Necrosis. R. Carveth, D. J. Mills and N. B. Gwyn, Toronto.—p. 244.
Study of Intracranial Hemorrhage in Infancy. U. J. Gareau, Regina, Sask.—p. 248.
*Use of Apple Powder in Treatment of Diarrheal Conditions and Its Rationale. I. A. Manville, Elizabeth M. Bradway and Avoca S. McMinis, Portland, Ore.—p. 252.
Experience with Fifty-Seven Brucellosis Infections in Saskatchewan. D. M. Baltzan, Saskatoon, Sask.—p. 258.
Institutional Care in Treatment of Poliomyelitis. F. H. H. Mewburn, Edmonton, Alta.—p. 263.
Our Experience with Hormone Treatment of Adenomatous Prostate. R. A. McComb and R. Pearse, Toronto.—p. 266.
Some Observations on Glycine Metabolism in Patients Suffering from Myasthenia Gravis. E. J. Maltby, Toronto.—p. 272.
Glaucoma, Pressure and Infection. R. Kerry, Montreal.—p. 275.
Treatment of Hernia by Injection. F. B. Bowman, Hamilton, Ont.—p. 276.
Some Thoughts on Acute Osteomyelitis of Long Bones. R. B. Deane, Calgary, Alta.—p. 279.
Environment and the Neuroses. Ruth MacLachlan Franks, Toronto.—p. 281.
Early Secondary Abdominal Pregnancy with Massive Intra-Abdominal Hemorrhages: Two Cases. J. O. Baker, Edmonton, Alta.—p. 285.
Interesting Family History of Appendicitis. G. G. Leckie, Lucky Lake, Sask.—p. 287.

Apple Powder in Treatment of Diarrheal Conditions.—Manville and his associates declare that the apple, since it contains acids, sugars and starch, cellulose and hemicelluloses, vitamins and pectin, occupies first place as a therapeutic agent of the fruit type. Tannic acid, because of its astringent effect, forms a protective coating on the mucous membrane. The tannin content of the apple is unaltered in the preparation of the powder. Its concentration, however, is increased, since it requires 100 Gm. of raw apple to make 15 Gm. of powder. Malic acid, as well as the other organic acids, is not appreciably altered in the preparation of the powder. There is some evidence to the effect that malic acid possesses a definite antiseptic value. The available sugar content of the apple is a little more than 12 per cent. It is composed of dextrose, sucrose, fructose and a small amount of starch. Aside from its caloric value, sugar increases the colloidal properties of pectin. The cellulose content of the fresh apple is slightly more than 1 per cent, while that of apple powder is a little more than 8 per cent. The vitamins contained in apples are limited to A, B and C. The chief value of the apple in the treatment of diarrheas and dysenteries appears to reside in the pectin component. It is partly due to their absorptive quality that pectins are able to fix bacilli and toxins and thus render them inert and to take up the fluid secretions and thereby convert a fluid stool into a formed one. Pectin removes the irritants and by providing bulk stimulates a normal physiologic peristalsis. Pectin is also a good buffer and, through the medium of this activity, is able to keep the fluctuations in the reaction of the intestinal contents within narrow limits. It also acts to some extent as a protective colloid. Apple powder has its greatest application in infantile conditions but is becoming definitely useful in the treatment of gastro-intestinal diseases in the adult.

Florida Medical Association Journal, Jacksonville

23: 355-412 (Feb.) 1937

Systolic Murmur, Its Interpretation. S. M. Salley, Miami.—p. 369.
Rôle of Sinusitis in Production of Cough. J. W. Taylor, Tampa.—p. 371.
Preventive Medicine and the Practitioner. W. A. McPhaul, Jacksonville.—p. 377.
*Diagnosis of Pulmonary Tuberculosis in Its Preclinical and Early Clinical Stages. H. W. Hetherington, Philadelphia.—p. 379.

Early Diagnosis of Pulmonary Tuberculosis.—Hetherington points out that case finding is the diagnosis of tuberculosis in its early clinical and preclinical stages. The dispensary method and the survey method are the two types of case finding procedures. The survey method is applicable to groups, such as high school, college and university students, to nurses and to industrial employees. It consists of a tuberculin test, roentgen examination, occasionally fluoroscopic examination and the application of clinical procedures to give additional information. The dispensary method consists in the examination of individuals with symptoms suggesting tuberculosis and the institution of prophylactic care and treatment when a diagnosis is made. It is among the contacts of sputum positive tuberculosis that new cases of tuberculosis are most likely to be found. Here the tuberculin test is an index of the infection of other members of the household. Roentgen examination is used to determine the presence of a lesion and to define its extent and characteristics. Members of households in which clinical tuberculosis exists should have periodic examinations, with roentgen examination at appropriate intervals. The tuberculin test and roentgen examination is valuable not only in the diagnosis of tuberculosis in the early clinical and preclinical stages but also in excluding this diagnosis.

Indiana State Medical Assn. Journal, Indianapolis

30: 115-176 (March) 1937

*Control of Syphilis and Gonorrhea. L. E. Burney, Washington, D. C.—p. 115.
Sociological Aspects of Venereal Disease Control. N. K. Forster, Hammond.—p. 120.
Prophylaxis. A. F. Weyerbacher, Indianapolis.—p. 123.
Diagnosis of Gonorrhea and of Primary Syphilis. J. T. Day, Indianapolis.—p. 126.
Standard Treatment of Syphilis. S. W. Litzenberger, Anderson.—p. 128.
Management of Acute Gonorrhea. C. J. Cooney, Fort Wayne.—p. 131.
Treatment of Chronic Gonorrhea in the Male. H. O. Mertz, Indianapolis.—p. 135.
The Problem of the Pregnant Syphilitic Woman. J. E. Dalton, Indianapolis.—p. 137.
Syphilis in Infants and Children. E. R. Carlo, Fort Wayne.—p. 140.
History of Syphilis Control. F. W. Cregor, Indianapolis.—p. 144.
Why Don't We Stamp Out Syphilis? F. R. N. Carter, South Bend.—p. 147.

Control of Syphilis and Gonorrhea.—Burney enumerates how every physician can do his part in the control of venereal disease. 1. Reporting of all cases of venereal diseases is a necessary procedure just as it is in typhoid or tuberculosis. If sources and contacts are to be found, examined and treated

and if infectious cases lapsed from treatment are to be returned to the physician, case reporting must be done. 2. It is essential that the physician follow proved, accepted standards of treatment in early cases to render the patient noninfectious when continuous and adequate treatment is so important. 3. The value of a routine serologic test is beyond question. In pregnancy, it must be a part of the first examination—rich or poor patient, early or late stage. 4. The physician-patient relationship is most important, something that cannot be obtained outside of private practice. 5. The physician must take his rightful place as an educator and teacher in all health problems. It is far better for him, with his scientific knowledge and experience, to tell young people about venereal diseases than for some socially minded but uninformed person to present a lot of untruths and misstatements which only confuse. 6. Cooperation with state and local health departments will be both beneficial and helpful in the combined efforts to control venereal diseases. Health departments do not take practice away from the physician; on the contrary, they should add to it through their many and varied educational programs. The physician should make use of them for his free laboratory service, for consultation and for any information he may desire and, in return, help them by his fullest cooperation. This is not a problem for one man or for one group; it can and must be a united effort.

Iowa State Medical Society Journal, Des Moines

27: 49-92 (Feb.) 1937

Breast Tumors and Surgical Clinic. W. W. Babcock, Philadelphia.—p. 49.
Tumors of Posterior Cranial Fossa: Review of All Cases of Infratentorial Intracranial Tumors Admitted to the State University Hospitals from July 1, 1934, to June 30, 1935. A. E. Walker, Iowa City.—p. 55.
*Hypertonic Glucose Therapy in Cardiovascular Diseases. M. G. Meyer, Marshalltown.—p. 61.
Ectopic Pregnancy. P. F. Miner, Woodward.—p. 64.
Rocky Mountain Spotted Fever. L. B. Sedlacek, Cedar Rapids.—p. 67.

Hypertonic Dextrose Therapy in Cardiovascular Diseases.—In reviewing the benefits of intravenous dextrose therapy in cardiovascular disease, Meyer mentions certain precautions. The solution should be warmed to body temperature, and only a solution made and tested by a standard pharmaceutical house should be used. Any concentrated solution is extremely irritating to subcutaneous tissues, and a 50 per cent concentrated solution almost invariably causes sloughing. Too rapid administration of even small amounts is attended with a definite drop in blood pressure, and pulmonary edema is another possibility when the compensation is in delicate balance. Venous thrombosis rarely occurs if the needle is inserted some little distance into the vein lumen. Continued daily injections of concentrated solutions will produce a secondary anemia. This was demonstrated experimentally in five apparently healthy persons who were given a series of hypertonic injections with the counts being made on venous blood. Hydremia will explain the initial drop, but carefully made slides showed a disintegration of red cells to a much greater extent ten minutes after the dextrose than in those before administration. The really valuable attributes of dextrose in cardiovascular diseases are well established. It has been proved experimentally that 50 per cent concentrated solutions increase the coronary rate of flow from 10 to 100 per cent and that the response is always obtained with repetition. In addition to its vasodilatory action, it has been shown experimentally that there is a marked increase in the glycogen reserve in the myocardium. By so doing the size of the resultant infarction, when a sudden occlusion results, should be materially reduced. In arteriosclerosis with cardiorenal failure characterized by hypertension, edema and diminished urinary secretion, concentrated dextrose has been used extensively. Theoretically it should offer good insurance against a too rapid degenerating myocardium and kidney tissue. In addition, its diuretic action is beneficial to the patient's comfort. Alleviation of subjective symptoms such as heart consciousness, headache, dizziness and mental cloudiness is marked. Chronic congestive heart failure due to arteriosclerotic degeneration also responds favorably to this type of therapy. Improved circulation through the coronary arteries and the increased food supply to the myocardium accounts for symptomatic relief.

Johns Hopkins Hospital Bulletin, Baltimore

60: 73-158 (Feb.) 1937

Study of Four Cats Deprived of Neocortex and Additional Portions of the Forebrain. P. Bard and D. M. Rioch, Boston.—p. 73.
Activation of "Prontosil Solution" in Vitro by Reduction with Cysteine Hydrochloride. Eleanor A. Bliss and P. H. Long, Baltimore.—p. 149.

Journal of Experimental Medicine, New York

65: 317-468 (March) 1937

Studies on Meningococcic Infection: X. Further Note on Presence of Meningococcus Precipitinogens in Cerebrospinal Fluid. H. E. Alexander and G. Rake, New York.—p. 317.
Chemical Investigations on Active Principles of Phenomenon of Local Skin Reactivity to Bacterial Filtrates: I. Purification by Dialysis and Attempts at Fractional Precipitation. G. Shwartzman, S. Morell and H. Sobotka, New York.—p. 323.
Anaphylactic Sensitization with Chemically Definite Compounds. H. E. Fierz, W. Jadassohn and W. Stoll, Zurich, Switzerland.—p. 339.
*Changes in Cutaneous Lymphatics of Human Beings and in Lymph Flow Under Normal and Pathologic Conditions. P. D. McMaster, New York.—p. 347.
*Lymphatics and Lymph Flow in Edematous Skin of Human Beings with Cardiac and Renal Disease. P. D. McMaster, New York.—p. 373.
Molecular Weight of Antibodies. M. Heidelberger, New York, and K. O. Pedersen, Uppsala, Sweden.—p. 393.
Antidiuretic Pituitary Substance in Blood, with Especial Reference to Toxemia of Pregnancy. K. I. Melville, Montreal.—p. 415.
Blood Plasma Protein Regeneration as Influenced by Infection, Digestive Disturbances, Thyroid and Food Proteins: Deficiency State Related to Protein Depletion. S. C. Madden, P. M. Winslow, J. W. Howland and G. H. Whipple, Rochester, N. Y.—p. 431.
Liver Function and Blood Plasma Protein Formation: Normal and Eck Fistula Dogs. R. E. Knutti, C. C. Erickson, S. C. Madden, P. E. Rekers and G. H. Whipple, Rochester, N. Y.—p. 455.

The Lymphatics and Lymph.—McMaster points out that vital dyes injected intradermally enter lymphatic capillaries directly, rendering them visible, and appear later in the draining lymphatic trunks as colored streamers. The method yields consistent results when tested under physiologic conditions known to increase or decrease lymph flow. In the horizontally placed normal limb at rest there is slight lymph flow. In a normal leg or arm hanging downward, lymph flow ceases although fluid in the limb increases. When a previously dependent arm is raised above the head, or when the foot of a seated subject is propped on a table, lymph flow in the raised limb becomes active. It ceases in the skin of an arm subjected to partial obstruction of the veins by pressure from without, but very active lymph flow appears during the reactive hyperemia that follows on the release of venous obstruction. It is still greater following release of total circulatory obstruction and seems to be the same whether or not the limb has been engorged previously with blood. In the ischemic patches which appear in the skin of a limb during total circulatory obstruction (Bier's spots) the lymphatic capillaries are definitely and considerably constricted, whereas they are slightly dilated in the purple, congested regions of the skin round about. On release of obstruction there occurs a strikingly rapid, equal lymphatic drainage from both regions. When dye is injected intradermally and the skin sucked, much of the foreign material is driven into the lymphatics draining the injected area.

Lymphatics and Lymph Flow in Edematous Skin.—McMaster performed more than 100 tests on twenty persons with cardiac disease and edema of the lower limbs. The tests yielded evidence of stagnation of lymph and incompetence of the lymphatics. In contrast to the stagnation of lymph in the edematous skin of patients suffering from cardiac disorder there exists a greatly increased cutaneous lymph flow in patients with nephritic edema. Local intradermal injections of dye have disclosed the fact that the skin lymphatics in regions of cardiac edema are patent, full of fluid and much widened. Intercommunication between them is ready and dye escapes from them more rapidly than from the vessels of normal skin. A retrograde distribution of dye by way of the lymphatics often occurs and it may pass unseen along the deeper channels to emerge in the skin at unexpected, distant situations. A valvular incompetence of the lymphatics consequent on dilatation would appear to be the cause of these phenomena. In regions of cardiac edema lymph stagnates, despite the fact that the channels are open. In nephritic edema the lymphatic capillaries are wider than normal but not as wide as in cardiac edema. No sign of incompetence of the valves is to be observed. Instead

lymph flow is considerably greater than normal, even when edema fluid is accumulating. It is greater in the periods of fluid equilibrium also and extraordinarily rapid in periods of diuresis.

Journal of Lab. and Clinical Medicine, St. Louis

22: 439-546 (Feb.) 1937

Mechanism of Anemia. R. L. Haden, Cleveland.—p. 439.
*Quantitative Relationship of Complement to Hemolysin: Its Direct Application in Serodiagnosis of Syphilis. J. Koopman and I. D. Falker, New York.—p. 457.
Observations on Living Mesenteric Capillaries. J. H. Ferguson, University, Ala.—p. 462.
Visceral Temperatures in Intact and Unanesthetized Animal: I. New Technic for Measurement. J. B. Hamilton, New Haven, Conn.—p. 466.
Effect of Paraldehyde and Benzyl Alcohol on Uterine Activity. G. B. Roth and H. F. Kane, Washington, D. C.—p. 477.
*Trichinosis: Report of Two Cases with Eosinophils in Stools. E. A. Baumgartner and A. Cowles, Newark, N. Y.—p. 484.
Antigenic Relationships of Hemolytic Streptococcus Exotoxins from Different Pathologic Conditions, with Especial Reference to Erysipelas. Betty S. Kolchin, New York; assisted by Rebecca Shapiro, Irena Feig and Gertrude Cohen.—p. 490.
Further Studies in Treatment of Agranulocytosis: Effect of Injections of Liver Extract and Milk Protein on Blood and Bone Marrow of Rat. C. Reich and Eleanor Reich, New York.—p. 503.
Preparing Permanent Smoked-Paper Tracings. V. Collier Jr., Washington, D. C.—p. 506.
Study in Difficulties Encountered in Friedman Test, and New Modification Using Blood Serum. A. M. di Gioia, San Francisco.—p. 508.
Accuracy of New Technic for Measurement of Red Blood Corpuscle Sedimentation. R. I. Dorfman and C. Brooks, New Orleans.—p. 510.
Use of Colloidal Iodine as Modification of Gram Stain. D. C. Lyons, Jackson, Mich.—p. 523.
Acetone Solvents for Romanowsky Stains. D. M. Kingsley, New Orleans.—p. 524.
Evaluation of Takata-Ara Reaction for Diagnosis of Liver Cirrhosis. R. O. Bowman and R. S. Bray, Providence, R. I.—p. 532.
Acetone Determinations by Acute and Simple Diaphanometric Method. C. Lange, Berlin, Germany.—p. 537.

Complement in Serodiagnosis of Syphilis.—Koopman and Falker assert that the quantitative relationship of complement to hemolysin is of more than academic importance. It has a direct bearing on the accuracy and consistency of all complement fixation tests. It is also the fundamental factor needed to solve the problem of the effect of the natural hemolysin in patients' serums on complement fixation results. The experiments that they outline demonstrate that in complement fixation reactions an excess of one reagent does not compensate for a deficiency of the other, and any method which is based on the theory of compensation cannot produce reliable or consistent results. A titration that is useful in disclosing the relationship existing between complement and hemolysin is planned so that various amounts of complement from a minimum (0.01 cc.) to a maximum (0.1 cc.) are allowed to act with various amounts of hemolysin from a minimum to a maximum. The effect desired will be more clearly shown if the complement and hemolysin are diluted so that each solution contains one unit in a volume of 0.1 cc. The cells are a 5 per cent suspension, and 0.1 cc. is used in each tube. The total volume is 0.5 cc. This titration should be allowed to remain in the water bath at 37 C. for at least one hour.

Trichinosis with Eosinophils in Stools.—Baumgartner and Cowles found eosinophils in the stools of two patients who had had diarrhea for weeks. A history of eating raw sausage just before this diarrhea began was obtained in both; they had high eosinophil percentages in blood smears at that time and now gave positive skin and precipitin reactions to trichina antigen. Four patients known to have had trichinosis also gave positive skin and three of these positive precipitin tests. One patient, an Italian girl, daughter of a known trichinosis patient, had an eosinophilia at the time of her mother's illness and now gave a markedly positive skin and precipitin test. Nine patients with no record of an eosinophilia and a negative history for trichinosis all gave negative skin tests and three of these had a negative precipitin test. Three patients in whom an eosinophilia (10, 21 and 23 per cent) was found in routine blood counts gave positive skin tests and one of these a negative precipitin test. The securing of positive skin tests in cases of eosinophilia may be accidental, since McCoy and others also noted this, but a further study of such cases with skin and precipitin tests is indicated.

Journal of Nutrition, Philadelphia

13: 123-234 (Feb. 10) 1937

Comparison of Glycine Contents of Proteins of Normal and Chondrodystrophic Chick Embryos at Different Stages of Development. A. R. Patton, Ithaca, N. Y.—p. 123.
*Iron Retention in Infancy. Genevieve Stearns and Dorothy Stinger, Iowa City.—p. 127.
Conservation of Blood Iron During Period of Physiologic Hemoglobin Destruction in Early Infancy. Genevieve Stearns and J. B. McKinley, Iowa City.—p. 143.
Comparative Study of Respiratory Quotient Following Ingestion of Glucose and of Fructose as Affected by Lactic Acid and Carbon Dioxide Changes in Blood. G. Bachmann and J. Haldi, with technical assistance of W. Wynn and C. Ensor, Emory University, Ga.—p. 157.
Effect of Diet on Constancy of Urinary Nitrogenous Constituents Excreted Daily by Preschool Children. Jean E. Hawks, Merle M. Bray and Marie Dye, East Lansing, Mich.—p. 179.
Respiration Chamber for Use with Human Subjects. L. H. Newburgh, Margaret W. Johnston, F. H. Wiley, J. M. Sheldon and W. A. Murrill, Ann Arbor, Mich.—p. 193.
Further Experiences with Measurement of Heat Production from Insensible Loss of Weight. L. H. Newburgh, M. W. Johnston, F. H. Lashmet and J. M. Sheldon, Ann Arbor, Mich.—p. 203.
Improved Growth in Rats on Iodine Deficient Diets. R. E. Remington, Charleston, S. C.—p. 223.

Iron Retention in Infancy.—Stearns and Stinger determined the quantities of iron actually retained by fourteen infants from 7 to 54 weeks of age who were given various types of feeding. One infant was given human milk; the basic milk formula for the others consisted of evaporated milk containing a cod liver oil concentrate. The milk feeding was acidified with citric acid and contained 6 per cent of added carbohydrate, a dry dextrin-maltose mixture. Distilled water was used for making up the feedings. Each infant was given 2 ounces (60 cc.) of orange juice daily. Egg yolk, potassium and iron salts, when fed, were added to the formula; spinach and cereal were fed separately. During the experimental periods the day's feeding for each infant was quantitatively prepared and an aliquot saved for analysis. The baby given human milk was never in negative balance although the retention was always small. Those given cow's milk feedings alone lost an average of 0.05 mg. of iron daily. The age of the infant had no apparent influence on the ability to retain iron. Neither egg yolk nor spinach, in the amounts given, increased the iron retention. The retention was definitely increased when the infants were given the special iron-rich cereal or ferric ammonium citrate. No consistent relationship was observed between the iron retention and the intake of potassium, calcium or phosphorus. It appears that an intake of approximately 0.5 mg. of iron as food or as soluble salt per kilogram of body weight is necessary to insure a retention of iron, and an intake of from 1 to 1.5 mg. per kilogram permits ample retention. Ample retentions were observed with these intakes of iron, whether the source of iron was from a special cereal and egg or from ferric ammonium citrate.

Journal of Thoracic Surgery, St. Louis

6: 237-354 (Feb.) 1937

Experimental Study of Some Physiologic Changes Following Total Pneumonectomy. J. J. Longacre, B. N. Carter and L. M. Quill, Cincinnati.—p. 237.
*Intrathoracic Anatomic Readjustments Following Complete Ablation of One Lung. W. F. Rienhoff Jr., Baltimore.—p. 254.
Results of Fifteen Consecutive One-Stage Lobectomies for Bronchiectasis. E. J. O'Brien, Detroit.—p. 278.
Lobectomy and Pneumonectomy in Bronchiectasis and Cystic Disease. E. D. Churchill, Boston.—p. 286.
Bronchoscopic Aspects of Bronchial Tumors, with Especial Reference to So-Called Bronchial Adenoma: Reports of Twelve Cases. C. L. Jackson and F. W. Konzelmann, Philadelphia.—p. 312.
Fate of Remaining Lung Tissue After Lobectomy or Pneumonectomy. J. L. Bremer, Boston.—p. 336.
Total Pneumonectomy for Congenital Bronchiectasis. J. Arce, Buenos Aires, Argentina, South America.—p. 344.
Mass Ligation of Pulmonary Hilum with Silver Band: Experimental Study. P. Shambaugh, Chicago, and R. Zollinger, Boston.—p. 350.

Intrathoracic Anatomic Readjustments Following Complete Ablation of One Lung.—Rienhoff presents his analysis of sixteen cases, in twelve of which a complete pneumonectomy was performed and in two a posttraumatic atrophy of the left lung had occurred; in the remaining two there was a congenital absence of one lung. The restitutional compensatory mechanism following total or partial removal of a lung is based on the readjustment and adaptation of the thoracic cage and diaphragm on the operated as well as on the unoperated side, on the com-

pensatory dilatation of the remaining lung and on the production of a space-occupying fenestrated labyrinth of connective tissue which tends to fill the remaining dead space, if readjustment and compensatory dilatation have failed to bring about a complete obliteration of the remaining thoracic* space. The author's experience so far teaches him that thoracoplasty or the resection of ribs may be given up, certainly as a primary procedure, and that in all probability, particularly in clean cases, it will be unnecessary to perform any type of thoracoplastic operation. It would also seem that it is unnecessary to do a phrenicectomy before or during the operation of total or partial pneumonectomy. For it is the piston action of the diaphragm on that side against the rigid intact wall of the thorax on both sides that brings about the so necessary expansion of the remaining lobes following partial pneumonectomy; and it is, as a rule, either completely immobilized or practically so on the operated side for some time following total pneumonectomy. It would also seem probable that at a later date the activity of the diaphragm on the operated side returns with the filling of the thorax by the dilatation of the contralateral lung. Hence it follows that interference with the normal anatomic or physiologic condition of the thoracic wall after total or partial pneumonectomy may be unnecessary, if not actually harmful. Resection of the entire lung seems to be a feasible operation which has proved itself worthy of a place among the recognized technically safe surgical procedures. Patients will survive this operation and be restored to their normal activity in a measure that is comparable not only in mortality but in the lack of postoperative incapacitation after operations performed for the removal of malignant visceral tumors elsewhere in the body.

Nebraska State Medical Journal, Lincoln

22: 81-120 (March) 1937

Medical Aspects of Tuberculosis. M. Fleishman, Omaha.—p. 81.
Childhood Tuberculosis. J. H. Murphy, Omaha.—p. 86.
Principles of Surgery of Pulmonary Tuberculosis. J. Weinberg, Omaha.—p. 92.
Pioneering in Surgical Management of Tuberculosis. C. Emerson, Lincoln.—p. 95.
Nature and Importance of Primary Infection in Tuberculosis. E. W. Hancock, Lincoln.—p. 98.
*Tuberculous Tracheobronchitis with Asthma. H. B. Stokes, Omaha.—p. 100.
Peripheral Vascular Disease: II. Diagnosis. C. W. McLaughlin Jr., Omaha.—p. 101.

Tuberculous Tracheobronchitis with Asthma. — Stokes draws attention to the symptoms of asthma as being an indication of a possible tracheal or bronchial obstruction secondary to and associated with the pulmonary lesion and stresses the importance of bronchoscopy in cases of tuberculosis that present symptoms of asthma. A woman, aged 39, complained of cough and vague pains in the chest. These symptoms had been present for four weeks, during the latter part of which she had begun to raise large amounts of sputum daily. A diagnosis of chronic bronchitis was made and a cough mixture prescribed. She was seen again three months later, at this time being referred to the author's office on consultation. She complained that the cough, unrelieved by medication, was growing progressively worse. Sputum was still being raised and she had lost weight, though her appetite remained good. Roentgenograms taken at this time revealed the presence of chronic pulmonary tuberculosis involving both apexes with cavitation in the left. Sputum examination was positive for tubercle bacilli. Four and one-half months after the onset of the illness, the patient experienced asthmatic symptoms. The attacks were so typical that it was believed that the patient had bronchial asthma. For purposes of bronchography, 10 cc. of iodized poppy-seed oil was instilled intratracheally. All the oil flowed into the right main bronchus. The next day instillation of iodized oil was repeated and most of it entered the right main bronchus, only a fraction gravitating to the left side, forming a small pool 2 cm. below the carina. One week later bronchoscopy was performed under local anesthesia. The larynx was diffusely hyperemic. The tracheal mucosa and the right main bronchus were inflamed and edematous. In the region of the carina on the left side extending down the left main bronchus there appeared an annular stenotic lesion consisting of a friable and highly vascular granulation tissue, bleeding easily on touch. The bronchostenotic lesion extended 2.5 cm. down from the carina in the left main bronchus. It was impossible to pass the bronchoscope beyond this point, since a lumen could no longer be followed, although a small airway could be seen through which at each respiratory cycle a tenacious mucopurulent secretion was expelled. A diagnosis of chronic tuberculous tracheobronchitis was made, the stenosis being mural and due to a granulomatous hyperplasia of the mucosa (granuloma). For several days after the bronchoscopy the patient was free from asthmatic symptoms. However, the attacks recurred subsequently with the former intensity. She refused to permit further bronchoscopic examination and was referred to an institution for roentgen therapy in the hope of reducing the granulomatous area. Cases of known pulmonary tuberculosis complicated by signs and symptoms of bronchial asthma should have the benefit of a diagnostic bronchoscopy before resorting to a lengthy, time consuming and expensive sensitization study for allergy, the specificity of which is too often equivocal even if a positive test is obtained.

Public Health Reports, Washington, D. C.

52: 189-208 (Feb. 12) 1937

Studies in Chemotherapy: III. Effect of *p*-Aminobenzene Sulfonamide on Pneumococci in Vitro. S. M. Rosenthal.—p. 192.

52: 209-234 (Feb. 19) 1937

Pulmonary Tumors in Mice: I. Susceptibility of Lungs of Albino Mice to Carcinogenic Action of 1, 2, 5, 6-Dibenzanthracene. H. B. Andervont.—p. 212.
Determination of Mercury in Carroted Fur. F. H. Goldman.—p. 221.

52: 235-268 (Feb. 26) 1937

*Lactoflavin in Treatment of Canine Blacktongue. W. H. Sebrell, D. J. Hunt and R. H. Onstott.—p. 235.

52: 269-294 (March 5) 1937

Age of Gainful Workers of the United States, 1920 and 1930: Studies on Age of Gainful Workers Number One. W. M. Gafafer.—p. 269.
Ixodes Ricinus Californicus (Banks) a Possible Vector of Bacterium Tularense. G. E. Davis and G. M. Kohls.—p. 281.
North American Records of Tick Ixodes Ricinus Californicus (Banks). G. M. Kohls and R. A. Cooley.—p. 282.

Lactoflavin in Treatment of Canine Blacktongue.—Sebrell and his associates placed five dogs on a basic blacktongue producing diet (No. 123). It has been their experience with this ration that, with few exceptions, it will produce blacktongue in dogs within about sixty days. These five dogs showed the first signs of blacktongue in fifty-three, thirty-six, thirty-two, sixty-one and sixty-seven days, respectively. Since the early symptoms of acute blacktongue frequently recede without treatment of any kind, in order to avoid this occurrence as far as possible the symptoms were allowed to progress until the attack was well developed. This stage was reached in six, two, four, five and six days, respectively, from the first appearance of symptoms. Treatment was then started with large doses of a solution of riboflavin given in gelatin capsules by mouth. All five of the experimental animals died in fourteen, five, four, thirty days and one day from the beginning of treatment with riboflavin, having received a total dosage of 10, 8, 8, 38 and 8 mg., respectively. Therefore riboflavin in relatively large doses administered by mouth is without therapeutic value in acute blacktongue of dogs. This adds further evidence to the view that riboflavin is distinct from the blacktongue-preventive factor.

Southwestern Medicine, Phoenix, Ariz.

21: 39-74 (Feb.) 1937

Acute Infectious Conjunctivitis. P. Richards, Albuquerque, N. M.—p. 39.
Congenital Ichthyosis: Case Report. P. S. Robinson, Los Angeles.—p. 41.
Consideration in Treatment of Sinus Infection. F. P. Schuster and S. A. Schuster, El Paso, Texas.—p. 44.
Rupture of Uterus: Case Report. A. J. DePinto, Phoenix, Ariz.—p. 47.
Food Poisoning (Allergy?); Gangrenous Appendicitis; Operation; Pulmonary Embolism; Death: Case Report. L. D. Beck, Phoenix, Ariz.—p. 48.
Upper Respiratory Infection from Spirochete: Diagnosis and Treatment. R. D. Haire, Roswell, N. M.—p. 49.
Hearing and Sound. L. L. Albert, Tucson, Ariz.—p. 51.
Child Tuberculosis Survey in Yuma County. J. B. Eason, Tucson, Ariz.—p. 53.
The Medical Society Organization. M. E. Burgess, Oraibi, Ariz.—p. 54.
Social Security and Public Health in Arizona. G. C. Truman, Phoenix, Ariz.—p. 57.
Social Security Program Administered by State Board of Public Welfare in Arizona. Florence M. Warner, Phoenix, Ariz.—p. 58.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49: 55-92 (Feb.) 1937

Acromegalia et Megalia Cutis (Cutis Verticis Gyrata). D. Toshkov.—p. 55.
*Intradermal Treatment of Lymphogranuloma Inguinale. M. S. Wien and Minnie Oboler Perlstein.—p. 63.
Dermanyssus and Liponyssus Avium et Gallinae Attacking Man. R. H. Boyt.—p. 66.
Carotinemia in Europeans in Tropics. J. H. Sequeira.—p. 69.
Investigation into Presence of Yeastlike Organisms in Scaly Lesions. A. Bigham.—p. 74.

Intradermal Treatment of Inguinal Lymphogranuloma.—Since their preliminary report on intradermal treatment with Frei antigen, Wien and Perlstein have observed and treated about 500 patients with inguinal lymphogranuloma. The treatment is still an unsatisfactory one, but they feel that intradermal antigenic treatment is of great value in hastening resolution of abscesses and discharging sinuses in early cases, lessening the incidence of sequels that result from the cicatrization of early lesions, in producing a state of "well being" in the patients and in fortifying the patient for surgical procedures, thus lessening the mortality and period of convalescence from operations. It is their feeling that the problem of clinical cure in inguinal lymphogranuloma is not unlike that in the treatment of syphilis. Treatment to be most effective must be started early, during the stage of localized (inguinal) adenitis and before the glands are broken down or marked direct or retrograde lymphatic extension has taken place. Because of the relapsing nature of the disease it is also necessary that the treatment be continued for some time after apparent clinical improvement has taken place. Conservative treatment with intradermal injections of Frei antigen has been more effective and has been associated with less destruction and disability than other methods of treatment.

British Journal of Physical Medicine, London

11: 157-174 (Jan.) 1937

The Healthy Integument. E. H. Strange.—p. 158.
Ellis Microdynameter: Laboratory and Clinical Investigation. W. E. Boyd.—p. 161.

British Medical Journal, London

1: 203-254 (Jan. 30) 1937

Lecture on Faints and Fits. A. R. Gilchrist.—p. 203.
Investigation of Internal Radon Therapy. F. D. Howitt, E. C. Pillman-Williams and S. Russ.—p. 208.
Psychologic Factors in Rheumatism: Preliminary Study. J. L. Halliday.—p. 213.
*Plasmodium Ovale Infection Contracted in Different Parts of West and Central Africa. P. Manson-Bahr and W. J. Muggleton.—p. 217.
"Rachi-Resistance" and Spinal Anesthesia. W. R. Black and G. A. B. Walters.—p. 218.

1: 255-310 (Feb. 6) 1937

Cerebral Vascular Accidents. C. M. H. Howell.—p. 255.
Types of Corynebacterium Diphtheriae in Capetown. Joyce Wright.—p. 259.
Prostatectomy by Two Stage Method: Survey of 158 Cases. W. K. Irwin.—p. 261.
Exostoses of External Auditory Meatus: Technic for Their Surgical Removal. A. Miller.—p. 263.
Psychologic Factors in Rheumatism: Preliminary Study. J. L. Halliday.—p. 264.

Plasmodium Ovale Infection Contracted in Africa.—Manson-Bahr and Muggleton have encountered four cases of Plasmodium ovale infection in the course of practice during the last two years, two in men and two in women. The infection had been contracted respectively in Uganda, Nigeria, Belgian Congo and Sierra Leone. The main clinical characteristics, so far as could be ascertained, are the comparative mildness of the infection and the almost invariable recurrence of the rigors and fever during the course of the evening in contradistinction to the usual morning rise of temperature in other varieties of malarial infection. Abdominal pain referred to the appendical area had led to a diagnosis of appendicitis, on clinical grounds, in three of the four cases, while in the fourth the pain was referred to the left loin and was thought to be due to a renal calculus. Subsequent to appendectomy rigors occurred and resulted in the demonstration of typical Plasmodium ovale parasites in the blood. Another clinical characteristic of diagnostic value in Plasmodium ovale infections are the rheumatic pains in various parts of the body, especially in the lumbar region. One case had actually been diagnosed as rheumatic lumbago. Malaria due to Plasmodium ovale is readily amenable to treatment with quinine or atabrine.

Edinburgh Medical Journal

44: 65-128 (Feb.) 1937

Virus Bodies: John Buist and Elementary Bodies of Vaccinia. M. Gordon.—p. 65.
John Brown Buist, 1846-1915: Acknowledgment of His Early Contributions to Bacteriology of Variola and Vaccinia. T. J. Mackie and C. E. van Rooyen.—p. 72.
Clinical Recollections and Reflections: X. Achlorhydria: Or "A Sea o Troubles." J. Eason.—p. 78.
*Basophil Cell of Hypophysis Cerebri: Stages in Its Life History. G. G. Lennon.—p. 94.
Studies in Method and Standardization of Blood Examination: IV. Estimation of Erythrocyte Fragility and Normal Standard. W. F. Harvey.—p. 100.
Levulose Tolerance Test of Hepatic Insufficiency. C. P. Stewart, H. Scarborough and J. N. Davidson.—p. 105.

Basophil Cell of Hypophysis Cerebri.—During an investigation to determine the relationship to high blood pressure and other states, e. g., eclampsia, to infiltration of the neural lobe of the hypophysis by basophil cells, Lennon noticed certain changes in these cells and made an attempt to correlate these changes with the life history of the cell in the anterior and posterior lobes of the gland. The material consisted of serial sections of fifty normal and pathologic human hypophyses. 1. The pars intermedia develops from the posterior wall of the cleft. 2. The cells of the pars intermedia attain maturity by accumulation of basophil granules. As these cells travel farther into the neural lobe, they undergo degeneration, becoming a mass of colloid (or hyaline) material. 3. This colloid enters the vessels of the neural lobe and can also be seen in the hypophysioportal vessels. 4. The basophil cell of the anterior lobe develops from a chromophobe cell, attains maturity by accumulation of granules, extrudes these granules, and reverts again to a chromophobe type.

Journal of Pathology and Bacteriology, Edinburgh

44: 1-280 (Jan.) 1937

Transplantable Carcinoma of Domestic Fowl, with Discussion of Histogenesis of Mixed Tumor. L. Foulds.—p. 1.
Results of Vital Staining with Phenol Red During Progress of Carcinogenesis in Mice Treated with Tar, Dibenzanthracene and Benzpyrene. J. W. Orr.—p. 19.
Familial Hemorrhagic Telangiectasia Associated with Multiple Aneurysms of Splenic Artery. Norah H. Schuster.—p. 29.
Spheno-Occipital Chordoma: Report of Case. W. E. C. Dickson, C. Worster-Drought and W. H. McMenemey.—p. 41.
Staphylococcus Toxin: Factors Which Control Its Production in Fluid Medium. D. McClean.—p. 47.
Heat Labile Toxin of Hemolytic Streptococci. R. Hare.—p. 71.
*Part Played by Erythrogenic (Dick) Toxin of Hemolytic Streptococcus in Puerperal Infection. M. Kenny and L. Colebrook.—p. 91.
Splenomegaly with Myeloid Transformation. G. R. Tudhope.—p. 99.
Multiple Necrosis of Spleen. H. A. Magnus.—p. 103.
Etiology of Benign Enlargement of Prostate in Dog. S. Zuckerman and J. R. Groome.—p. 113.
Classification of Bacterium Coli from Diseased Calves. R. Lovell.—p. 125.
Particulate Nature of Avian Sarcoma Agents. C. R. Amies.—p. 141.
Growth of Coliform Bacilli in Water. J. W. Bigger.—p. 167.
*Observations on Etiology of Influenza. R. W. Fairbrother and L. Hoyle.—p. 213.
Influence of Copper in Peptones on Growth of Certain Pathogens in Peptone Broth. R. A. Q. O'Meara and J. C. Macsween.—p. 225.
Isolation and Typing of Corynebacterium Diphtheriae on Tellurite Blood Agar. V. Glass.—p. 235.
Metabolism of Joint Tissues. E. G. L. Bywaters.—p. 247.

Effect of Erythrogenic Toxin of Hemolytic Streptococcus in Puerperal Infection.—Kenny and Colebrook tested 100 patients as early as possible after the infection by hemolytic streptococcus was recognized, in order to exclude the possibility of their having changed from Dick positive to Dick negative as a result of the infection. All were notifiable as "puerperal fever" except one whose temperature did not exceed 100 F. at any time. The Dick toxin was injected (0.2 cc.) intradermally on the ventral surface of the forearm and a similar injection of heated toxin was made into the other arm as a control. There were nineteen positive reactions to

the skin test. This is a smaller percentage than is found among normal women at or about full term. Contrary to experience in scarlet fever, none of the positive reactors gave a negative reaction when retested subsequently at an interval ranging from six to thirty-seven days. The filtered peritoneal exudate of two fatal cases of puerperal peritonitis in which an intense scarlatiniform rash had occurred during life was found to contain an erythrogenic toxin of considerable potency when tested on human beings, and this toxin was neutralized by standard antitoxin. With one of the filtrates a sharp febrile reaction also resulted from intradermal injection. A serum to be of value as a prophylactic remedy against puerperal infection must be capable of preventing invasion by any one of many types. Until there is unmistakable evidence of the curative value of serum given after the beginning of experimental infections of animals (i. e., in circumstances comparable to those of human infections), it would seem prudent to withhold serum treatment in human cases.

Observations on Etiology of Influenza.—The attempts of Fairbrother and Hoyle to isolate by ferret inoculation a virus from cases of sporadic influenza and other diseases during an interepidemic period in the Manchester district have given negative results. Studies of normal human serums in the area have shown that neutralizing antibodies against both human and swine influenza viruses are present in many of the serums A complement fixation test has been developed for the study of the antibody content of human serums and the results obtained indicate the presence of a common antigenic factor in the human and swine viruses. The antigen concerned with complement fixation is distinct from that involved in the neutralization test. Attempts to isolate virus from material collected during an outbreak of epidemic influenza in Leningrad have given negative results, although it is possible that the delay in transit of the material may explain this failure. A study of a small number of serums collected after the epidemic has provided some evidence that the virus may have been the causal agent.

Lancet, London

1: 247-306 (Jan. 30) 1937

Recent Aids to Prognosis of Pulmonary Tuberculosis. R. R. Trail. —p. 247.
Immunizing Potency of Antigenic Components Isolated from Different Strains of Bacteria Typhosum. W. W. C. Topley, H. Raistrick, J. Wilson, M. Stacey, S. W. Challinor and R. O. J. Clark.—p. 252.
Immunizing Activity of Certain Chemical Fractions Isolated from Hemolytic Streptococci. T. C. Stamp and E. B. Hendry.—p. 257.
Diagnosis and Treatment of Duodenal Ulcer. F. McPhedran and T. Owen.—p. 260.
*Use of "Doryl" (Carbaminoylcholine) in Postoperative and Postpartum Retention of Urine. C. Moir.—p. 261.
Treatment of Postoperative Retention of Urine with Doryl. J. S. Maxwell.—p. 263.
Rider's Bone: Report of Case. A. Moore.—p. 264.

Carbaminoylcholine in Postoperative and Postpartum Retention of Urine.—Moir used carbaminoylcholine in the treatment of thirty-eight cases of postoperative or postpartum retention of urine. The drug is often remarkably successful in causing the patient to void urine naturally and is worthy of trial in patients for whom catheterization would otherwise be necessary. Its most successful use is after abdominal section or after a simple vaginal operation. It is least successful in patients suffering from overdistention of the bladder—especially after childbirth, and in cases in which there is mechanical obstruction to the passage of urine. One of the chief errors to guard against is the assumption that a patient has completely emptied her bladder by the micturition induced by the drug. Often the evacuation is only partial. Side effects (slightly accelerated pulse, nausea, faintness and a feeling of warmth) are seen in about a third of the cases but are seldom serious. The dose, 0.25 mg. of the pure substance dissolved in 1 cc. of fluid, was usually given intramuscularly.

South African Medical Journal, Cape Town

11: 1-38 (Jan. 9) 1937

The Itinerant Operator. L. I. Myerson.—p. 3.
The Chief Therapeutic Advances During the Past Twenty-Five Years. A. W. Falconer.—p. 6.
A Rural Hospital in India. H. de Villiers.—p. 11.
South African Public Health Services. H. S. Gear.—p. 13.

Mémoires de l'Académie de Chirurgie, Paris

63: 183-214 (Feb. 17) 1937

Bilateral Kienboeck's Disease of Semilunars of Wrist. Madier and Ségal.—p. 191.
*First Attempts at Heteroplastic Medullary Grafts in Man in Injuries of Peripheral Nerves. A. Gosset and I. Bertrand.—p. 197.

Heteroplastic Medullary Grafts.—More than two years ago Gosset and Bertrand reported their experiments in grafting pieces of the spinal cord on a severed peripheral nerve in animals. In the succeeding two years they continued their experiments also on man. Twelve such graftings were done in France, of which four were by the authors. The animal used is the adult rabbit or the cat weighing from 5 to 6 pounds which is killed by severing its carotid artery under short anesthesia. Under strict asepsis the dorsal part of the spine is resected. The dura mater is carefully laid bare, without the slightest injury to it or to the underlying cord, which is dissected. The cord together with its spinal segment is immersed in a 20 per cent solution of formaldehyde. The next day it is easy to free the cord from its bony attachment and then it is again immersed in a fresh 20 per cent solution of formaldehyde. It can thus be preserved for a number of months. A few days before using it the piece of cord is washed in sterilized salt solution, which should be renewed as often as there are traces of formaldehyde left. It is then immersed for two or three days in 90 per cent alcohol. The authors' first experiment was on an interrupted radial nerve at the elbow. The graft was united with a silk suture to the upper end of the nerve and with three silk sutures to its lower end. Two months later, dorsal extension of the wrist was possible. About a year later this activity became much stronger, but extension of the fingers and abduction of the thumb were incomplete. There is also hypo-esthesia in the area of the radial nerve. About fourteen months after the operation, weak electrical responses were demonstrated. The procedure in the other cases was similar. In contrast with the usual well known slowness of recuperation, this intervention shows rapid regeneration. Of course, part of the success must be attributed to the youth of the patients. The authors assume that there is a vicarious substance in the dead graft which is capable of activating the progression of the axis cylinder. This is astounding in view of the fact that the living central nervous substance prevents the regeneration of the axis cylinder. Physicochemical processes seem to play an important part in either accelerating or retarding the recuperative forces in a degenerated nerve.

Presse Médicale, Paris

45: 273-288 (Feb. 20) 1937

Rheumatic Pneumonia. R. Debré, J. Marie, J. Bernard and E. Normand.—p. 273.
*Action of Gastric Juice on Gastric Secretion. Léon-Meunier.—p. 276.
Thyroid Osteosis and Spontaneous Fracture in Exophthalmic Goiter: Case. F. Gottlieb and M. Schachter-Nancy.—p. 277.

Action of Gastric Juice on Gastric Secretion.—The treatment of gastric ulcer by injection of various substances has been the subject of numerous articles. All these reports show only a restricted duration of observation and a consistent admission of the sedative action of the injected material. Léon-Meunier utilized Loeper's experiments with pepsin because it is a positive colloid and as such has, like proteins, shock properties, and also because it is a specific colloid and can be used like glandular extracts. Idiosyncrasies, which occurred even when feeble doses were used, prompted the author to employ the patient's own pepsin. The fasting patient receives an intragluteal injection of 0.5 cc. of a solution of histamine of 1 mg. per cubic centimeter. After a few minutes, when the patient has symptoms of vasodilatation, he is given orally 50 cc. of physiologic solution of sodium chloride. The gastric mixture is then extracted from the patient in a horizontal position, filtered, submitted to fractional sterilization at 140 F. and neutralized with a sterile isotonic solution of sodium bicarbonate. Subcutaneous or cutaneous injections are given in the buttocks daily in amounts of 1 cc. of this solution. During this treatment the patient undergoes no change of diet. By injecting histamine without a test meal the author believes that errors due to residual fluids have been eliminated. This enables him to determine the constant acidity of the gastric juice, which

is a true picture of the gastric mucosa in action. Through the injection of the patient's own gastric secretions the author obtained a diminution of pain in hypersecretion accompanied or not by an ulcerous lesion. This diminution of pain runs parallel with a decrease in acidity estimated as constant acidity by the method of double dilution. These phenomena are a result of desensitization of the patient, causing a decrease in acidity and a consequent change in the element of pain. But they do not allow the deduction of anatomic cure of the ulcer.

45: 289-312 (Feb. 24) 1937

Neurovegetative System During Hyperthermy. Pasteur Vallery-Radot, G. Mauric and J. Lemant.—p. 289.
*Yellow Fever and Antiamarillic Vaccination. E.-L. Peyre and P. Fricaud.—p. 291.
Pulmonary Lesions in Country Schools. M. Gillard.—p. 294.

Yellow Fever and Antiamarillic Vaccination. — Peyre and Fricaud, of the French colonial army, describe nine cases of meningeal accidents occurring a few days after vaccination against yellow fever. A noncommissioned officer received two injections in three weeks. Two days after the second injection he presented general urticaria, vomiting, debility and raised temperature but no albuminuria. He had tremors in both arms, especially the right, diffuse hypertonia, myoclonic agitation and cogwheel sign. There was progressive improvement, but relapse occurred ten weeks later. The tremors of the right arm hindered his work and, because his general condition remained deficient, he was invalided home. Two groups of symptoms must be considered in almost all cases, one dealing with visceral disorders caused by a virus which is little pathogenic for man. The other group is caused by the neurotropic virus able to bring forth an encephalitic reaction after a simple subcutaneous injection. A fatal case of yellow fever in a previously vaccinated subject was of the latter type: onset with fever, pain in the back and epigastrium, alimentary, bilious and hemorrhagic vomiting, metrorrhagia, subcutaneous ecchymoses and albuminuria; after four days improvement and icterus, but the next day exacerbation of symptoms and death of amarillic hepatitis. This case and some tests made on rhesus monkeys seem to throw doubt on the efficacy of yellow fever vaccination, and its inconstant action on mice has raised doubts as to the fixity of the neurotropic virus. In four recent cases albuminuria was found to be of less reliable diagnostic value. Instead, azotemia was a faithful prognostic guide. It seems to be the result of considerable disassimilation of nitrogenous substances of the organism which have an extrarenal bearing on the parenchyma of the liver. This bearing is evidenced also by hypochloremia and some authors have demonstrated that, whenever the elimination of chlorides is considerably diminished in infectious diseases, as in yellow fever, there is retention of injected chlorides during the disease, probably for the neutralization of azotemia, and an increased elimination at the beginning of convalescence. It was therefore encouraging to notice an increase in elimination following injections of sodium bicarbonate and chloride, and, in one case, of hypertonic saline solution. The blood urea rose to 1 Gm. at the critical point on the sixth day, to come down to 0.4 on the ninth day. The pathologic physiology of yellow fever is little known as yet and its vaccination has no constant action.

Bol. d. Società Medico-Chirurgica, Pavia

50: 947-1234 (No. 6) 1936. Partial Index

*Calcaneal Apophyseal Dystrophy: Cases. F. Leinati.—p. 947.
Positive Intrapleural Pressure in Course of Bilateral Artificial Pneumothorax. C. Sartori.—p. 1011.
Mechanism of Action of Pneumoperitoneum. G. Ferrari and A. Bertola.—p. 1027.
Pseudotumor of Pancreas from Gumma in Syphilitic Pancreatitis: Case. G. Barbaro-Forleo.—p. 1039.
Therapeutic Pneumoperitoneum. G. Ferrari and A. Bertola.—p. 1091.
Influence of Morphine and Histamine on Cutaneous Reaction to Tuberculin. G. Ferrari.—p. 1131.

Juvenile Calcaneal Apophyseal Dystrophy.—According to Leinati, juvenile calcaneal apophyseal dystrophy enters into a group of dystrophies with which it has in common their development in growing children and their pathogenesis, symptomatology, anatomopathologic picture, x-ray appearance and clinical evolution. The disease is more frequent than is believed. Some cases are not reported to physicians but improve by rest or by limitation of physical activities. Others are erroneously diagnosed as achillodynia, talalgia or rheumatism. The disease develops at the time of appearance of the secondary nucleus of ossification of the calcaneus and complete ossification of the nucleus. Circulatory and endocrine disturbances and toxic, dyscrasic and infectious factors, associated with a mechanical stimulation, either unique and strong or continuous and weak, cause subchondral necrosis of the spongy epiphysis with consequent pain in the bone and impaired function of the foot. The early lesion constitutes the place of diminished resistance at which the osteogenic activity is intensified and the blood supply increased. Arrival of bacteria in the primary lesion may cause infectious acute apophysitis, either benign and similar to juvenile dystrophy or grave and even fatal phlegmonosis. The diagnosis is easy because of the fact that the disease has the following clinical characters: It appears in the juvenile age, the pain is located at the point of insertion of the achilles tendon, causes functional incapacity of the foot, has special x-ray aspects in relation to the form and ossification of the bone, and the subjective signs disappear by complete rest of the patient. The differential diagnosis is especially made with tuberculous and pyogenic apophysitis and retrocalcaneal bursitis. As a rule there are no complications. The prognosis is good. The treatment depends on the type and evolution of the disease. It consists in local hot and other applications, rest, use of orthopedic apparatus and a general treatment with phosphorus, iodine, arsenicals, calcium, vitamins and opotherapy. Four cases are reported.

Lattante, Parma

8: 1-72 (Jan.) 1937

Quantitative Modifications of Vitamin C of Milk of Women in Relation to Sea Climate. F. Rubini.—p. 15.
Postinfectious Acute Meningo-Encephalitis: Cases. N. Carrara.—p. 21.
*Powdered Vegetables in Treatment of Anemia in Infants. F. Rubini.—p. 33.
Treatment of Rickets. M. Barbone.—p. 40.

Powdered Vegetables in Diet of Infants.—Rubini has examined the blood of a group of twelve infants, ranging in age from 6 to 19 months, who suffered from anemia of varying intensity, before and after administration of a preparation of powdered vegetables. The group included infants fed on mother's milk as well as on artificial or mixed diets. The administration of powdered vegetables added to the diet resulted in increasing the hemoglobin and the number of erythrocytes, the globular value and the globular ratio. The leukocyte formula showed only slight modifications, the lymphocytes being slightly increased at the expense of the neutrophils. According to the author, the improvement in the blood crasis depends on the supply of mineral salts and vitamins contained in the powdered vegetable preparation. The treatment is of value in controlling and in preventing anemia in infants.

Riforma Medica, Naples

53: 151-184 (Jan. 30) 1937

*D'Amato's Signs for Diagnosis of Pleural Effusion. R. Locascio.—p. 151.
Hyperazotemia and Chloropenia in Acute Abdominal Conditions: Treatment with Intravenous Injections of Hypertonic Solution of Sodium Chloride. M. Santi.—p. 158.

Pleural Effusion.—Locascio studied the mechanism of production of D'Amato's signs. They were described in *Riforma medica* **51**:1503 (Oct.) 1935 and abstracted in THE JOURNAL Dec. 28, 1935, page 2190. The signs described consist in the paradoxical displacement of lateral dulness from the upper to the lower segments of the vertebral column and from the vertebral segment to the cardiac area, when the patient changes from the sitting position to the lateral decubitus and lies on the side opposite to that on which the pleural effusion is located. The author shows, by means of photographs, the behavior of paravertebral and paracardiac dulness in several types of pleural effusion. According to the author the results of roentgen examinations of the thorax during the postural changes of the patient showed that the paradoxical lowering of dulness about the vertebral column is an indication that pleural effusion can be displaced in the pleural cavity. The phenomenon takes place regardless of the presence of intrapleural adhesions if the

effusion is in relation with the vertebral column. The pleural fluid in the posterior costomediastinal sinus advances to upper segments of the vertebral column in the lateral position of the patient. The increased resonance of the segment in relation to that of the patient in the sitting position is due to the fact that, in the lateral position, the pressure of the effusion rests on the mediastinal septum and not on the lung. The dulness of the anterior costomediastinal sinus may not appear in cases of posterior encysted pleurisy. The pleural fluid passes from the posterior into the anterior costomediastinal sinuses during the postural changes. The results were confirmed by exploratory puncture of the sinuses during the postural changes. The author believes that the passage of the fluid in the costomediastinal sinuses is due to physical conditions of the lung, topographic conditions of the organ in relation to the anterior costomediastinal sinus, diminished pressure of the pathologic lung by the gravitional displacement of the heart during the postural change, and changes in pressure of the fluid from pressure on the lung to pressure on the mediastinal septum.

Prensa Médica Argentina, Buenos Aires

24: 283-332 (Feb. 10) 1937. Partial Index

*Short Distance Roentgen Treatment in Cancer. A. H. Roffo and V. Del Giúdice.—p. 283.
Pyloric Stenosis from Compression in Lymphatic Tuberculosis. J. J. Beretervide, R. Savage and R. A. Pereira.—p. 297.
Continuous Partial Epilepsy: Case. O. Luque and P. Audap-Soubie.—p. 302.
Cardiac Hydatidosis: Case. R. Gonzales Bosch and D. Mosto.—p. 308.
Emotions: Etiologic Rôle in Heart Diseases. R. Chaminaud.—p. 324.

Short Distance Roentgen Treatment of Cancer.—Roffo and Del Giúdice administered roentgen irradiations from a short distance, using a tube of the Chaoul type to a group of patients suffering from advanced carcinoma or sarcoma. The focal distance varied between 3 and 5 cm., the tension was 60 kilovolts and the intensity varied between 3 and 4 milliamperes. When the lesions were extensive they were divided in several fields for irradiation. The patients were given the irradiations in fractional doses of 325 roentgens and received a total dose that varied between 2,380 and 14,730 roentgens. The treatment lasted for two or two and a half months. At what intervals the irradiations were given is not specified by the authors. The results were satisfactory in all cases. The tumors disappeared, the ulcers were healed and there was improvement in the general condition of the patients. The treatment is particularly indicated for cancer of the skin, the mucous membranes, the mouth, the fauces and the female genitalia, in which the x-ray tube can be placed in close contact with the cancerous tissues. Some patients obtained satisfactory results from the treatment in cancer of the larynx (which was irradiated through the skin of the neck), in tumoral metastases of the neck from cancer of the larynx and in cancer of the breast. The authors believe that the results of the treatment are due to the increased amount of roentgens that come in contact with the cancerous tissues because of the proximity of the focus to the lesion, to the effect of soft and short wave irradiations and especially to the action of cathode rays.

Revista de Medicina y Cirugía de la Habana, Havana

42: 61-126 (Feb. 28) 1937

*Diarrhea in Malaria. P. A. Sainz.—p. 61.
Syphilis in Surgical Diseases. I. Ferrer.—p. 70.
Crenotherapy: History. V. Santamarina.—p. 83.

Diarrhea in Malaria.—Sainz reports five cases of postprandial diarrhea in adults whose recovery was induced by a combined treatment of atabrine and arsphenamine in small doses, the amount of which is not specified. The author believes that the diarrhea was caused by latent malaria with gastro-intestinal localization. In cases of refractory diarrhea in which syphilis, cancer and parasitic infestation are excluded, the presence of malaria should be sought in the past history of the patient. It is advisable to induce spleen contraction by epinephrine injection or expression of the tonsils (the so-called amygdalin test) to induce passage of malarial parasites into the blood with consequent development of a febrile malarial attack, which gives the clue of the malarial etiology of the gastro-intestinal disturbance.

Archiv für klinische Chirurgie, Berlin

187: 675-804 (Jan. 25) 1937. Partial Index

Gastroduodenal Ulceration After Total Diversion of the Bile. H. Hanke.—p. 675.
*Experience with Acute Pancreatitis. A. Mahner.—p. 691.
Syphilitic Contracted Stomach. E. Fenster.—p. 705.
Treatment of So-Called Chronic Mastitis. H. Weber.—p. 715.
*Results with Malignant Tumors of the Mouth. H. R. Schinz and A. Zuppinger.—p. 729.

Acute Pancreatitis.—Mahner reports nineteen cases of acute pancreatitis which he observed and emphasizes a preference for the conservative treatment. Operation was performed in four of the cases because of uncertainty as to the diagnosis. The four patients died. Of the fifteen cases in which conservative treatment was administered six were either complicated by or followed obstruction of the common duct. The high diastase content of the urine of the relatively mild cases, as contrasted with the much lower content of some of the severe cases, suggests that there is no parallelism between the diastase content and the severity of the case. On the other hand, increasing diastase content of the urine is proof of an organic disease of the pancreas. The author believes that the natural defense mechanism is capable of taking care of the secondary infection following the acute pancreatic necrosis and therefore he is opposed to surgical intervention at this stage of the disease as well. Operation on the biliary tracts is indicated when it can be proved that they are the direct cause of pancreatitis; the author, however, warns against its performance too soon after the subsidence of acute pancreatitis. The operative intervention may, as in one of his cases, prove to be more dangerous to the pancreatitis than the gallstone disease. He suggests an interval of three months during which the patient is to be carefully supervised and kept on a strictly fat-free diet. Wohlgemuth's determination of the diastase content of the urine is of great diagnostic value in acute pancreatitis. For the cases of somewhat longer duration the Rona and Michaelis serum lipase reaction is of value. The conservative treatment consisted in preliminary fasting days, as advised by Gustav von Bergmann, permitting lightly sugared tea, followed by a fat-free carbohydrate diet.

Malignant Tumors of the Oral Cavity.—Schinz and Zuppinger review the results obtained at the Roentgenologic Institute of the University of Zurich in the treatment of malignant tumors of the epipharynx, mesopharynx, hypopharynx and larynx. For tumors in this localization the authors consider protracted fractional distance irradiation the method of choice. Surgical treatment alone is no longer permissible with the exception of the case of laryngeal fissure in small cancers of the vocal cords. The close range treatment, in the form of radium implantation or the intra-oral radium pack, is to be considered only in tumors of the soft palate uncomplicated by metastases. Electrocoagulation in later combination with radium implantation is utilized as an aid in the treatment of small residual tumors or recurrences of small size. Regional lymph nodes are treated by irradiation. Primary surgical removal is not practiced. The principal advantage of the distance irradiation carried out in the form of prolonged fractional treatment is the complete absence of deforming effect. Of the 115 cases treated, fifty-one were tumors of the movable portion of the tongue, thirty-one of the floor of the mouth, eleven of the buccal mucosa, thirteen of the alveolar process and gum, five of the hard palate and four extensive ones of the oral cavity whose origin could no longer be determined. Hornified flat cell carcinomas predominated. Other types were occasionally seen in tumors involving the hard palate. The authors consider radium implantation in the primary tumor and later removal of the lymph nodes, followed by irradiation, the method of choice in carcinoma of the movable portion of the tongue. Protracted fractional distance irradiation alone, with a later radium implantation in the remnant of the tumor, was employed in the advanced stages of the disease. For small tumors of the floor of the mouth the authors recommend, besides radium implantation, the use of a radium pack and protracted fractional distance irradiation for the advanced stage. The same treatment is applicable to the carcinomas of the buccal mucosa. The treatment of the tumors of the hard palate depends to a great extent on the histologic character of the growth. More or less roentgen resistant tumors, such as gland carcinomas,

should be operated on. Protracted fractional distance irradiation is the only method to be considered in the treatment of diffuse tumors of the oral cavity. More than half of their cases presented an advanced stage of the disease with extensive growth and frequently with regional metastases. Thirty-nine cases of oral neoplasm were treated between 1919 and 1928, but in only twenty was the treatment completed. Seven of the patients were alive one year later, five after three years and five after five years. Of the last five patients only one was treated exclusively by surgery. During the period 1929-1935, seventy-six patients were treated. In sixty-one the treatment was completed. Of forty, thirteen survived a period of three years, and of sixteen, two survived a period of five years. The relative three and five year symptom-free period for the group treated between 1919 and 1928 amounted to 25 per cent. The completely free three year period for the group treated between 1929 and 1933 amounted to 32 per cent, and the relatively free to 40 per cent. The results obtained with primary irradiation followed by later surgical interventions were better than those obtained by primary operation and later irradiation. Two patients out of thirty-two were symptom free after a three year period under the latter treatment, while with the former sixteen out of forty-nine were symptom free at the end of three years. The protracted fractional distance irradiation is capable of giving permanent results with extensive tumors of the oral cavity. Of twenty-two cases of carcinoma of the buccal mucosa, seven were symptom free for from one to four years.

Medizinische Welt, Berlin

11: 167-198 (Feb. 6) 1937. Partial Index

Lymphogranulomatosis: 1. History and Etiology; Gordon Test. V. Schilling.—p. 167.
*Traumatic Etiology of Acute Yellow Atrophy of Liver. R. Peter.—p. 170.
Importance of Raw Diet in Dietetic Therapy. K. Eimer.—p. 174.
Aseptic Meningo-Encephalitides with Mild Course. H. Mäurer.—p. 179.
Treatment of Postoperative Retention of Urine. G. Stupperich.—p. 182.

Traumatic Etiology of Acute Yellow Atrophy of Liver.—Peter shows that from the etiologic point of view acute yellow atrophy of the liver is a complicated process, with the cumulative effect of several factors. It appears that the condition of the hepatic cells is even more important than the type and mode of action of the eliciting factor. Trauma is one of the many factors that may play a part in the pathogenesis of acute yellow atrophy of the liver. The author demonstrates this in a case from the literature and in a case of his own observation. The latter case concerned a man, aged 67. During a fall, the patient's abdomen had been forced against the edge of a wooden box. No definite diagnosis was reached on the basis of the clinical aspects, but acute yellow atrophy of the liver was taken into consideration. The patient died and the necropsy corroborated the existence of an acute yellow atrophy of the liver. In the concluding evaluation the author expresses the opinion that, even in the cases in which the acute yellow atrophy of the liver has a causal connection with a trauma, the condition of the hepatic cells plays a part. The trauma sensitizes the hepatic cells for substances that previously had only a latent toxicity.

Zentralblatt für Gynäkologie, Leipzig

61: 369-432 (Feb. 13) 1937. Partial Index

*Roentgenologic Determination of Length of Child in Uterus. H. Wegrad.—p. 373.
Chief Problems of Short Wave Therapy in Gynecologic Inflammations. E. Raab.—p. 384.
Trophoneurotic Changes of Skin Following Lumbar Anesthesia. H. Bělohradský.—p. 390.
Mortality in Surgical Treatment of Gynecologic Disorders. R. L. Schub.—p. 405.

Determination of Length of Child in Uterus.—Wegrad shows that only the measurement of the vertebral column, more specifically the part extending between the first cervical and the fifth sacral vertebrae, is suitable for this purpose. However, to compute the total length of the child it was necessary to determine a definite ratio between the total length of the child and the distance between the first cervical and the fifth sacral vertebrae. This the author did by measurements on a large number of new-born infants. He found that the ratio averaged about 2.29, the use of which can reveal in the individual only an approximate result. The focus-screen distance is 125 cm. Before the exposure is made, the diameter of the prone woman is measured at the level of the central ray. The length of the vertebral column (between the two points) is measured on the x-ray film and the true length is computed according to the following ratio: true length is to film length as focus-screen distance minus half the diameter of the woman is to focus-screen distance. The resulting figure multiplied by 2.29 gives the total length of the fetus. The author discusses the possible sources of error. The correctness of the method can be determined only if delivery takes place within the first three days after the roentgen examination. Control measurements on fifty new-born infants revealed that in 84 per cent the difference between computed length and actual length was less than 1 cm.

Wiener klinische Wochenschrift, Vienna

50: 243-274 (Feb. 26) 1937. Partial Index

Microchemical and Microbiologic Problems in Cancer Research. A. von Christiani.—p. 243.
Traffic Accidents and Alcohol. F. Starlinger and R. Scholl.—p. 247.
Qualitative Thrombocytic Blood Picture in Chronic Myeloid Leukemic Reaction (Myeloid Leukemia) on Basis of Eleven Observations. J. Arneth.—p. 249.
*Deallergization in Hay Fever by Means of Papainized and Peptonized Grass Seeds. E. Urbach.—p. 252.
Clinical Recognition of Hemorrhages Caused by Excessive Production of Estrogenic Hormone. R. Joachimovits.—p. 257.

Deallergization in Hay Fever.—Urbach calls attention to the shortcomings of desensitization of hay fever patients by injections of pollen proteins and then describes a new method. Studies on animals and on human subjects proved that it is possible to improve or counteract hay fever by the oral administration of seed proteins that have been treated with papain or peptone. Preparations of seed proteins containing the proteins of several types of grasses are designated as "polysemins." Several different types of such polysemins have been prepared. For the treatment of hay fever patients who are sensitive to the pollens of various cereals such as rye, wheat or maize, "frumins" were prepared from the brans of these cereals, and "florins" were prepared from the flowers of certain trees for those sensitive to the pollens of these trees. The determination of the types of pollens that cause the hay fever in the individual case is likewise done differently. Whereas formerly it was done by cutaneous or intracutaneous tests, it is now done by the nasal pollen test. Since the aforementioned protein preparations are active only in the fasting stomach, the author recommends that the tablets be given four times daily: one hour before breakfast, one hour before the noon meal, one hour before the evening meal and again at 11 o'clock at night. If the patient is sensitive to grass, cereal and tree pollens, polysemins, frumins and florins are given. Since the sensitivity to grass pollens is usually predominating, the author recommends three tablets of the polysemins at each medication, but only two tablets each of the other two preparations. The tablets are given pulverized in water, to which either the juice of half a lemon is added or from 1 to 2 teaspoonfuls of an acid mixture consisting of 25 Gm. each of concentrated hydrochloric acid and of dry pepsin with distilled water to make 200 Gm. Patients with hyperacidity do not tolerate the acid mixture and are given the protein preparations alone. The author stresses the following as the advantages of this treatment: the oral medication, harmlessness, painlessness, elimination of the time-consuming preseasonal treatment and possibility to effect a deallergization by a systematic treatment of three or four weeks' duration.

Polska Gazeta Lekarska, Lwów

16: 173-192 (March 7) 1937

*Chronic Articular Diseases Treated with Fluorine Salts. J. W. Jankowski.—p. 174.
Is It Necessary to Perform Cesarean Section Without Relative Indication? B. Engländer.—p. 177.
Social-Pathologic Significance of Rheumatism and Its Conquest. Marian Kowalski.—p. 179.
Sachs-Witebsky's Reaction in Diagnosis of Syphilis. Z. Warczewski.—p. 182.

Chronic Articular Diseases Treated with Fluorine Salts.—Jankowski reviews the literature on the use of fluorine salts in the treatment of chronic articular diseases and describes seventeen cases which he has treated and in which he has observed beneficial results. After all known methods

of therapy had been exhausted without obtaining any benefit, he tried a 1 per cent watery solution of sodium fluoride. At first he administered orally 5 drops twice a day and then increased the dosage to 10 drops and later to 20 drops three times a day. He found that these doses may be given for months without fear of injury. In some patients the treatment was interrupted for a few days on account of gastric irritation, weakness or vertigo. All cases were notably improved, but it is too early to foretell final results. The calcium level of the blood was studied in four cases and was observed to remain unchanged.

Problemy Tuberkuleza, Moscow

Pp. 1-160 (No. 1) 1937. Partial Index

Significance of Lymphogenous Phase in Development of Bronchogenous Tuberculosis. V. I. Puzik.—p. 19.
Effect of Sensitivity on Tuberculosis. I. A. Kusevitskiy.—p. 29.
*Ligation of Pulmonary Veins as Method of Hyperemic Treatment of Pulmonary Tuberculosis. L. K. Bogush.—p. 59.
*Velocity of Circulation in Tuberculous Patients. F. V. Shebanov.—p. 86.

Ligation of Pulmonary Veins in Pulmonary Tuberculosis.—On the basis of eleven ligations of pulmonary veins, Bogush concludes that access to the root of the lung and ligation of the vein is technically quite feasible after resection of the cartilage and of a portion of the third rib. The operation does not present great technical difficulties. He emphasizes at the same time that the ligation of a thick short venous trunk intimately connected with the pericardium, the narrow operative field, the presence of scars and adhesions about the root, the cough reflex whenever the bronchus is compressed and the cardiac pulsations call for delicate manipulations. Complete ligation of the pulmonary vein in tuberculous patients does not produce serious alterations of any kind. In the presence of limited involvement there is noted, in the first days and months after the ligation, a lowering of the temperature, diminution of the cough and of the amount of the sputum, improvement in the general condition and appetite, marked diminution of the catarrhal signs and decrease or disappearance of tubercle bacilli from the expectorations. The author concludes that pulmonary vein ligation is a justifiable surgical intervention in the presence of fresh lesions limited to one lobe and not marked by great destruction. In the presence of an extensive destructive process with copious expectoration and high temperature, vein ligation may be useful as a preliminary procedure to the operation of thoracoplasty in order to reduce the secretion, lower the patient's temperature and improve the general status.

Velocity of Circulation in Tuberculous Patients.—Shebanov utilized the method of injecting 1 cc. of a 10 per cent solution of calcium chloride in the cubital vein to determine the speed of circulation. He performed 300 tests in 120 patients exhibiting a variety of types of pulmonary tuberculosis and subjected to various therapeutic regimens. The average speed, as measured by the time elapsed between the injection and the point at which the patient experiences a burning sensation at the root of the tongue, amounted to 12.7 seconds. According to the author, changes in the velocity depend on the toxic action on the circulatory system and on the mechanical alterations following active surgical interventions. These alterations constitute an objective criterium as to the permissibility or the limit of such interventions. A pronounced toxemia causes slowing of the circulation by depressing the cardiovascular system. Artificial pneumothorax increases the velocity of circulation by diminishing the toxemia and the territory of the lesser circulation. Functional adaptability of the circulatory organs determines the limit of acceleration of the blood stream. A sharp change from acceleration to slowing of the blood stream signifies an untoward effect of gas insufflation on the circulatory function. Too great acceleration does not guarantee sufficient aeration of the blood and does not remove anoxemia. Phrenico-exeresis accelerates the blood stream in the presence of fresh lesions and in the absence of a prolonged toxic depression of the heart. However, in the presence of functional cardiac insufficiency phrenico-exeresis may lead to further slowing of the blood stream. Determination of the blood stream velocity made before a thoracoplasty or between different stages of operations enables one to detect a latent insufficiency of the cardiovascular apparatus and to forewarn against the risk of the operation. Pleurisy with a serous, and particularly with a purulent, exudate slows the circulation as a result of toxemia. Determination of the velocity can be used as an index to the proper time for evacuation of the exudate. The calcium method of determination of the velocity of circulation is useful as an index of prognostic significance as well as an index of therapeutic measures.

Ugeskrift for Læger, Copenhagen

99: 125-154 (Feb. 4) 1937

On Suggestion. P. J. Reiter.—p. 125.
*Immunization Against Diphtheria with Purified Anatoxin: Experiences in Immunization of More Than Six Thousand Children in Iceland. N. Dungal.—p. 134.
Thrombopenic Purpura After Treatment with Arsphenamine, with Recovery After Blood Transfusion: Case. A. Stigaard.—p. 138.

Immunization Against Diphtheria with Purified Anatoxin in Iceland.—Dungal says that diphtheria, which was unnoticed in Rejkjavik for eight years, suddenly began to appear early in 1935. Since the Schick tests showed extensive susceptibility, immunization with anatoxin was carried out in 65.5 per cent of the population up to 13 years of age. The antigens used were Ramon's anatoxin and, in most cases, purified anatoxin (Schmidt) with aluminum hydroxide. The latter gave better results, with local reaction in 36.8 per cent and rise in temperature in 39.6 per cent. The immunization percentage was lower than in other countries, presumably because the stimuli of latent infection were lacking.

99: 155-184 (Feb. 11) 1937

Chronic Acetanilid Intoxication as Result of Continued Use of "Mixed Headache Powders" or Similar Compositions. E. Lundsteen, E. Meulengracht and A. Rischel.—p. 155.
*Treatment of Arterial Hypertension with Rhodan. K. H. Fremming.—p. 162.
Bradycardia in Young Man: Case. E. Rud.—p. 167.

Treatment of Arterial Hypertension with Rhodan.—Fremming reports that twenty-two patients, all with systolic blood pressure of more than 200 mm., were ambulantly treated with potassium and sodium rhodan. A reduction of more than 60 mm. in systolic blood pressure resulted in three, of between 40 and 60 mm. in fifteen and of between 20 and 40 mm. in four. The average decrease was 49 mm. in the systolic and 20 mm. in the diastolic blood pressure. Six of the patients were completely relieved of symptoms, ten noted a definite improvement, and in six the condition was practically unchanged. During treatment the rhodan content of the serum was controlled by a photometric method devised for this purpose, and the dosage adapted accordingly. The optimal rhodan concentration in the serum during treatment was from 7 to 12 mg. per hundred cubic centimeters. The dosage required for this concentration varied individually from 0.15 to 0.5 Gm. daily. No grave complications were seen during the treatment.

99: 185-212 (Feb. 18) 1937

Congenital Difficulties in Reading in School Children. H. Rønne.—p. 185.
*Review of Bactericidal Substances in Normal Blood Especially in Man, Together with Investigations on Thermostable Bactericidal Substance, Particularly Occurring in Serum of Fever Patients: Preliminary Report. P. Hjorth.—p. 192.

Bactericidal Substances in Normal Blood.—Hjorth discusses the thermolabile alexin, the thermostable B-lysin and the bactericidal leukocyte substances (leukins or endolysins), and the thermostable bactericidal substance discovered by Wulff, especially to be found in serum from fever patients. In his personal investigations he found twenty-eight out of thirty strains of meningococci sensitive to the substance, also four apathogenic, gram-negative cocci and a Staphylococcus albus strain. Investigations in series in patients with fever showed that the thermostable bactericidal substance appears a few days after the fever sets in and does not disappear until the temperature has been normal for a few days. This property in the fever serum disappears only on heating to 68 C. for half an hour. A serum thus inactivated can be reactivated by the addition of small quantities, in themselves inactive, of active serum or of serum heated to 56 C. for half an hour. So far its effect has been studied only in meningococci. The author is inclined to class the substance in question with the B-lysin group.